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INCIPIENT HYPOTHYROIDISM

A CLINICAL STUDY *

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The thyroid gland is the best understood member of the endocrine system, and, on account of its accessibility for extirpation experiments and other observations, its functions are fairly well established. The greater part of the literature on the thyroid deals with clinical entities resulting from an overactive gland, and it has been only in comparatively recent years that its underactive potentialities have been given serious consideration.

In 1874, Gull published his classic monograph, "On a Cretinoid State Supervening in the Adult Life of Women." Eleven years later, Schiff successfully transplanted the thyroid gland into the abdominal wall and initiated the treatment of thyroid insufficiency by feeding the desiccated glands.

In 1895, Magnus-Levy [1] demonstrated the ability of thyroid preparations to raise the rate of both oxygen and carbon dioxid exchange through the lungs, and in 1904, he [2] pointed out the principles of interrelationship between thyroid activity and basal metabolism.

It is now generally recognized that a reduction in the basal metabolism is the most constant single evidence of hypothyroidism. This statement is made with due respect to other glands which under certain conditions may lower the metabolism. The gonads may be included in this group. Rovinski [3] has shown that the fall of metabolism following castration largely disappeared if the thyroid was first removed, and he concluded that the lowered metabolism was due to a depression of the thyroid rather than directly to absence of the gonads. The influence exerted by the anterior lobe of the pituitary gland is similar to that of the gonads, and it is possible that it is accomplished also through the thyroid. The fourth organ that regulates metabolism is the suprarenal. Recent studies have shown that removal of the suprarenal glands from cats definitely lowered their rate of metabolism In a few cases of Addison's disease reported with metabolic studies, evidences of a reduced metabolism have been demonstrated.

Exhaustive studies on patients showing marked depression of their metabolic rates have been made from time to time by Plummer,[4] Means,[5] Sturgis,[6] and others,[7] all of whom found a close parallelism between physical signs and the percentage of metabolism.

This report deals with another group of cases in which the metabolic rates were sufficiently near the borderline to make the diagnosis of hypothyroidism doubtful, unless substantiated by other evidence. Twenty-three cases have been selected from the records at St. Elizabeth's Hospital,[8] whose metabolic readings ranged from —11 to —25. A probable diagnosis of incipient hypothyroidism was based on an analysis of the histories, physical findings and basal metabolisms, and was further strengthened by the beneficial effect following the administration of thyroid extract or thyroxin.

The object of the report is to emphasize certain so-called clinical syndromes which are not commonly found in the true myxedema types. In the majority of instances, symptoms referable to other pathologic conditions constituted the chief complaint.

RESULTS OF OBSERVATIONS

Sex.—The entire series consisted of female patients, as no metabolic studies were carried out on men.

Age.—The ages by decades were: from 1 to 10, one case; from 10 to 20, two cases; from 20 to 30, four cases; from 30 to 40, five cases; from 40 to 50, eight cases; from 50 to 60, two cases, and from 60 to 70, one case. It will be seen that more than half the patients were between the ages of 30 and 50, particularly at or following the menopause.

Level of Basal Metabolism.—The level of the basal metabolism in this series varied from —11 to —25 Low readings are generally associated with one or more of the unmistakable evidences of myxedema and very seldom occasion any difficulty in diagnosis. Sturgis, however, has reported the case of a physician who showed a metabolism of more than 20 per cent. below the normal and was entirely free of symptoms. In my experience, some patients with a low reading have shown fewer signs of a thyroid deficiency than others whose rate was considerably less markedly low.

From a diagnostic standpoint, the most important group for study is that in which the metabolism of the patients falls between —10 and —20. As a rule, evidences of a true myxedema are lacking, and there may be an actual hyperirritability. While the skin is often suggestive, the pulse may be accelerated, and loss of weight is not uncommon. In fact, the clinical picture of the mild hypo-active state may not differ very materially from the early hyperactive syndrome.

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* From the medical department, St Elizabeth's Hospital

* Read before the Section on Practice of Medicine at the Seventy Sixth Annual Session of the *American Medical Association, Atlantic* City, N J, May, 1925

[1] Magnus Levy, A · Ueber den respiratorischen Gaswechsel unter dem Einfluss der Thyreoidea, Berl klin Wchnschr **32**: 650, 1895

[2] Magnus Levy, A Ueber Myxodem, Ztschr f klin Med. **52**: 201, 1904.

[3] Rovinski, M I · The Influence of Thyroidectomy and Castration upon the Gaseous and Nitrogenous Interchange of Substances in Animals (Russian), Dissertation, Petrograd, 1913

[4] Plummer, H S Interrelationship of Function of the Thyroid *Gland and of Its Active Agent, Thyroxin, in the Tissues of the Body,* J A M A **77**: 243 (July 23) 1921

[5] Means, J H The Basal Metabolism in Obesity, Arch Int Med **17**: 704 (May) 1916

[6] Sturgis, C C A Clinical Study of Myxedema with Observations of the Basal Metabolism, M Clin N Am **5**: 1251 (March) 1922

[7] Boothby, W M, and Sandiford, Irene Calorigenic Effect of *Adrenalin in Dogs, Am J Physiol* **59**: *463, 1922* King, J T, Jr · Hypothyroidism, South M J **17**: 662 (Sept) 1924. Emery, E S, Jr · Blood in Myxedema, Am J M Sc **165**: 577 583 (April) 1923

[8] All determinations of the basal metabolism were made with the Benedict Collins apparatus at St Elizabeth's Hospital, under conditions as nearly ideal as possible All tests were made in the early morning, after the patients had abstained from food or drink since the previous evening meal, and had rested in bed from one half to one hour preceding the determinations

Relation of Pulse Rate to Basal Metabolism.—Contrary to the usual conception of the hypothyroid patient, the pulse rate in our series was below 70 in only a few instances, and in some there was a definite increase above the normal rate. The pulse record was obtained during the metabolism test when complete relaxation was emphasized. At other times, there was often a definite tachycardia wholly out of keeping with the usual picture of an underactive gland. A probable explanation of this apparent deviation from the tendency to bradycardia is not difficult to surmise. While the pulse rate in true uncomplicated myxedema is relatively slow, the milder grades of thyroid deficiency are generally associated with other pathologic conditions which naturally may alter the pulse rate as well as the entire clinical picture. An accelerated pulse may therefore exist in spite of a definite hypothyroidism. In the more advanced type of myxedema, the degenerative changes in the heart muscle usually account for the presence of a rapid pulse. I was unable to establish any true relationship between the pulse pressure and metabolic readings in this series by the use of Read's[9] correlation coefficient.

Table 1.—*Incidence of Clinical Conditions Associated with Lowered Metabolism, in Order of Frequency*

Clinical Conditions:	Times
Colloid goiter	7
Ovarian disease or removal	4
Menopause	3
Obesity	3
Hysterectomy	2
Pituitary disease	1
Tetany	1
Cholelithiasis	1
Duodenal ulcer	1

Associated Clinical Conditions.—The chief clinical diseases that were associated with the group showing a lowered metabolism are listed in their order of frequency in Table 1.

Colloid goiter ranks first in the series, occurring in seven of the twenty-three cases. Although Plummer states that the basal metabolism in colloid goiter is usually between — 8 and — 15 per cent., one of this group had a basal reading of — 25.

Diseases of the generative organs and the menopause came next in frequency. In fact, the combined number of this type exceeded the incidence of goiter as an associated clinical condition. Experimental evidence seems to support the impression that castration tends to lower the metabolism. Aub,[10] for instance, favors this view on the assumption that the metabolism is lowered following the removal of the gonads, probably through depression of thyroid activity. Other studies, however, have failed to establish this relationship, although the subject has apparently not received the attention it deserves. The fact that many women show a tendency toward obesity after the menopause may be considered as evidence of a lowered metabolism, but there is no definite proof of such a decrease. The frequent onset of hypothyroidism at or during the menopause also suggests a relation between the ovaries and the thyroid gland.

The fact that more than one half of these patients were actually below their normal weight, according to the American actuarial standards, indicates that obesity is not necessarily a symptom of hypothyroidism. In Table 2, the relation of the age-weight to the metabolic readings is given. Only three cases can be credited with an excessive amount of adipose tissue. As pointed out by Means, obesity is not an indication of thyroid insufficiency, but may, in fact, show a moderate increase in the metabolic rate. It is not uncommon to find a lowered metabolism in an undernourished person who may actually gain weight under thyroid therapy.

Significant Signs and Symptoms.—In the well marked types of true myxedema, the signs and symptoms are generally so constant and typical that little variation is found. In the milder forms, however, a different syndrome presents itself which bears only a slight similarity to the fully developed types (Table 3). Dryness of the skin and dryness of the hair are common to both, but to a much milder degree in the incipient cases. In the present series, these signs were present thirteen and ten times, respectively. A premature wrinkling of the forehead, which may have some diagnostic bearing, was observed in a number of cases.

Nervousness of a local or general nature was one of the most frequent complaints. In some, it was a sensation of tingling in the extremities, or perhaps a sense of constriction about the head; in others, there were periods of depression, emotionalism or other evidences of a neurosis. As these clinical manifestations are so commonly indicative of a hyperactive gland, they are not generally sought for in the hypothyroid states.

Fourteen out of twenty-three histories emphasized vague unclassifiable pains as a prominent factor in the illness. This symptom was frequently referable to the abdomen, and was often the source of considerable annoyance in the diagnosis. It was generally inconstant, was neuralgic in type, and varied in intensity from day to day. The fact that the pain bore no definite relation to any particular organ or nerve distribution was its most characteristic feature.

Table 2.—*A Comparison of the Height and Weight According to Age, Showing Thirteen of the Twenty-Three Patients Below the Normal Standards*

		Hgt.	Wgt.	Pounds					Hgt.	Wgt.	Pounds		
No.	Age	In.	Lbs.	+	—	B.M.	No.	Age	In.	Lbs.	+	—	B.M.
1	47	69	90	..	73	—13	13	39	60	120	..	6	—18
2	45	67	152	..	1	—16	14	64	64	110	..	34	—11
3	34	63	116	..	14	—16	15	49	64	107	..	36	—20
4	43	67	143	..	9	—18	16	27	68	112	..	32	—17
5	46	65	186	40	..	—25	17	34	68	180	30	..	—25
6	16	65	160	36	..	—23	18	55	67	180	22	..	—16
7	9	50	80	23	..	—25	19	40	62	110	..	22	—22
8	26	66	135	4	..	—19	20	59	62	127	..	11	—24
9	16	62	124	10	..	—22	21	38	64	195	58	..	—16
10	44	67	133	..	20	—18	22	26	69	192	44	..	—16
11	38	64	85	..	52	—12	23	24	66	130	..	4	—11
12	48	67	160	4	..	—16							

Constipation and Headache.—These were complained of by thirteen and five, respectively, of the twenty-three patients. Although these symptoms are common in the true myxedemas, they probably are no more frequent in the incipient cases than they usually are in other conditions.

Localized Edema.—This was observed in seven patients, the lowest metabolism in this group being — 16. According to Plummer, edema generally decreases when the metabolic reading is about — 18 and increases as the depression becomes more marked. The swelling was of the myxedematous type in only one patient. In the remaining six, there was slight pitting of the ankles, a sense of tightness in the fingers, and a moderate fulness of the eyelids.

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[9] Read, J. M.: Basal Pulse Rate and Pulse Pressure Changes Accompanying Variations in Basal Metabolic Rate, Arch. Int. Med. 34: 553-565 (Oct.) 1924.

[10] Aub, J. C.: The Relation of the Internal Secretions to Metabolism, J. A. M. A. 79: 95 (July 8) 1922.

The absence of certain myxedematous signs was rather striking. In no instance was there any evidence of circulatory changes as shown by arteriosclerosis, vascular hypertension, cardiac abnormalities or renal complications. The patellar reflexes showed no demonstrable delayed response, as pointed out by Chaney,[11] in the more advanced types of hypothyroidism. Anemia was not a complicating factor, and there was no relative change in the differential count of the white cells.

Table 3.—*Major Signs and Symptoms Accompanying the Lowered Basal Metabolism, in Order of Their Frequency*

	Times
Dryness of skin	13
Dry or thin hair	10
Nervous (local and general)	17
Indefinite pains	14
[illegible]	13
[illegible]	7
[illegible]	5

GENERAL IMPRESSIONS

It is obvious that no definite conclusions can be drawn from this limited series; there are, however, certain impressions that may be worthy of consideration:

1. Incipient hypothyroidism is represented by a clinical syndrome largely distinctive from true myxedema.
2. In addition to a moderate degree of dryness of the hair and skin, neuroses, of various types, and vague unclassifiable pains constitute the most frequent complaints.
3. Obesity is relatively uncommon, and actual underweight is not infrequently found in the mild hypothyroid states.
4. Incipient hypothyroidism is more frequently found near the menopause and apparently bears some relation to the activity of the ovaries.

Medical Arts Building

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[11] Chaney, W C: Tendon Reflexes in Myxedema A Valuable Aid in Diagnosis, J. A. M. A. **82**: 2013 2016 (June 21) 1924.

Prevention of Interstate Spread of Disease.—Under the quarantine act of Feb. 15, 1893, the Secretary of the Treasury is authorized to issue regulations for the prevention of the spread of contagious and infectious diseases from one state to another. These regulations may be enforced by the states, but the Public Health Service is authorized to cooperate in their enforcement, not only to prevent the spread of diseases, but to promote health. This is the means invariably taken. The wisdom of such a policy is shown by the substantial growth of state health agencies, the cordial spirit of cooperation that prevails, and the substantial advance made Examples of work of this character that may be mentioned are cooperative work in rural sanitation, and the examination of rodents to prevent plague and examination of water supplies used on vessels and trains engaged in interstate traffic There are great possibilities of extending such work, and it is along these lines that work of the Public Health Service will advance. The limitations of existing federal laws in this respect may be determined only by future judicial interpretation—Kerr, J. W.: *Pub Health Rep* **40**:1680 (Aug 14) 1925.

EXOPHTHALMIC GOITER (GRAVES' SYNDROME) AND INVOLUNTARY NERVOUS SYSTEM

XII. PATHOGENESIS *

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The abstract discussion of the pathogenesis of exophthalmic goiter may serve a threefold purpose—the interpretation of known data, the suggestion of avenues of approach for future study, and the development of a rational therapeutic regimen.

As we have previously shown,[1] the symptoms of exophthalmic goiter are identical with those which may be produced in any individual by effective doses of a sympathomimetic substance. We are still convinced that the participation of the involuntary nervous system is an important element in the evolution of exophthalmic goiter. Accordingly, a discussion of the pathogenesis of exophthalmic goiter necessitates a preliminary inquiry into the factors that may control the involuntary nervous system in health and disease.

The involuntary nervous system may produce the manifestations of exophthalmic goiter through the intervention of some unknown circulating sympathomimetic substance or substances. Thus far, attempts to demonstrate such a substance in effectual concentration in the circulating fluids have proved futile Again, the sympathomimetic symptoms may be produced by a loss of some restraining influence (parathyroid,[2] suprarenal cortex [3]) but this work is as yet too recent for adequate discussion. There is indicated an inquiry into the better established facts with regard to the involuntary nervous system.

The involuntary nervous system supplies with a dual and reciprocal innervation [4] practically all glandular tissue and smooth and cardiac muscle. Disturbances of the involuntary nervous system may, in consequence, assume an infinite variety of clinical manifestations—changes in the caliber of the bronchi and peripheral blood vessels, modifications of every conceivable type in the secretory and motor activity of the stomach, intestines and sweat glands, and every known alteration of rhythmicity, conductivity and irritability of heart muscle. Such changes may occur singly or in combinations of any variety. The occurrence of any such disturbance in function results in the production of symptoms through the entrance into consciousness of the activities of the involuntary nervous system. These symptoms lead the patient to the physician. The symptoms often point to one organ which, on careful examination, proves sound and free of demonstrable organic disease, and it is then that there arises the suspicion that the basis of the disturbed function is an alteration in the innervation These conditions are usually diagnosed as visceral "neuroses," but should be regarded, in our opinion, as local manifestations of widespread disturbances in the involuntary nervous system; i. e., autonomic imbalance.[5]

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* Read before the Section on Practice of Medicine at the Seventy Sixth Annual Session of the American Medical Association, Atlantic City, N J, May, 1925

[1] Lieb, C C.; Hyman, H T, and Kessel, Leo: A Study of Exophthalmic Goiter and the Involuntary Nervous System, J A M A **79**: 1099 (Sept 30) 1922

[2] Collip J. Pharmacol & Exper Therap **25**: 2 (March) 1925

[3] Marine, Baumann and Cipra Am. J Physiol **72**: 248 (April) 1925

[4] Gaskell The Involuntary Nervous System, New York, Longmans, Green & Co, 1916

Autonomic imbalance is characterized by widespread and diverse clinical manifestations of instability of the involuntary nervous system, and by absence of demonstrable organic disease, and it runs a course punctuated by remissions and exacerbations. As a general rule, the patients suffer no severe inroads on their general health and form the large group of sufferers, the majority of whom are neither ill nor well, who wander from pillar to post and fall easy prey to the current charlatan. Of the myriad manifestations of autonomic imbalance, exophthalmic goiter is by far the most severe, the most complicated and the most debilitating. Any discussion of the pathogenesis of exophthalmic goiter presupposes an understanding of autonomic imbalance and its dependence, in turn, on disturbances of the involuntary nervous system.

We have not yet identified the factors that may regulate the tonicity of the involuntary nervous system in health, in emergency and in disease. To the endocrinologist, the involuntary nervous system is intimately concerned with the hormones; together they constitute a self-regulatory mechanism, a beneficent cycle in which the hormones regulate the activity of the involuntary nervous system; and the involuntary nervous system, in its turn, modifies the secretions of the glands. However, the very converse seems to be true, for the involuntary nervous system may function normally in the absence of the ductless glands,[6] and the ductless glands may continue to function after they have been deprived of their innervation. For the present, we may consider that the independence of the involuntary nervous system and the ductless glands has been established and that the inclusion in the realm of endocrinology of autonomic imbalance sets up a false hypothesis and suggests a useless therapeutic procedure.

The involuntary nervous system may be either stable or unstable. The instability may be either congenital or acquired, and it seems to increase in direct proportion to the advance of civilization. In each individual with autonomic imbalance, there is a characteristic manifestation of the instability which constitutes the "reaction picture." We do not know what determines the inheritance of the type of the "reaction picture," but, once established, this "reaction picture" is relatively fixed for that individual and may be evoked pharmacodynamically by the investigator. It is often quiescent (potential autonomic imbalance), but it may be activated in many ways. In the clinic, the most frequently observed activating agents are infection and psychic trauma. The sympathomimetic symptoms in early tuberculosis exemplify the activation by infection. More important, however, is the activation by psychic disturbances and emotional stress. Indeed, in almost every instance, irrespective of the original activating cause, the psychic factor eventually operates; for the visceral symptoms of the autonomic imbalance give rise to anxiety, and the "fear of illness" imposes on the "reaction picture" another activating agent (psychic trauma). A correct diagnosis may be, therefore, a potent psychotherapeutic agent. It may serve, prophylactically, to prevent the production of the cyclic reactivation of the symptoms, or it may serve to minimize the existing imbalance by removing the fear of organic disease. On the other hand, an incorrect diagnosis or a failure to recognize the mechanism of the production of the "reaction picture" may serve to perpetuate the symptoms. Such patients are often temporarily benefited, for example, by a Christian science practitioner, who denies the very existence of the symptom or by any therapeutist who will (like the charlatan), with the assurance of the ignorant, promise a cure. Many of the "cures" of organic disease announced by the various sects are, in truth, temporary remissions of an autonomic imbalance in which the "reaction picture" resembles the manifestations of an organic disease. An understanding of the pathogenesis of autonomic imbalance simplifies the therapeutic management; drug therapy plays a minor rôle and organotherapy none whatever.

Of the great number of patients with autonomic imbalance, only a small percentage develop exophthalmic goiter. Practically all patients with exophthalmic goiter *give a history of a diathesis; i. e., autonomic imbalance.* The transition from autonomic imbalance to exophthalmic goiter is characterized by the appearance of a metabolic change measured by an *elevation of the basal metabolic rate.*[7] Dependent on the elevation of the metabolic rate there develops a third group of symptoms (loss of weight, increased tachycardia, asthenia) which, in their turn, are due to the increased catabolism.

Such an increase in the energy metabolism may be produced by sympathomimetic influences, such as emotional shock or the amins of the epinephrin group or cocain. Were a sympathomimetic influence alone responsible for the metabolic change as well as the precedent imbalance, the management of exophthalmic goiter would be divisible into the care of the patient during the uncomplicated period of the imbalance (already indicated) and during the period of the metabolic upset. The latter period is, in our experience,[8] self-limited but may be curtailed through the use of iodids.[9] The tissues of the patient should be conserved (rest in bed) by proscribing any physical or psychic strain that might make extra energy demands and by furnishing exogenous fuel (high caloric diet).

However, the transition to exophthalmic goiter may involve the operation of an additional etiologic factor. The deficiency theories (parathyroid [2] and suprarenal cortex[3]) are not yet sufficiently developed to merit discussion. But the frequent hyperplasia of the thyroid gland has for many years directed attention to a possible thyrogenic origin for the disease. If the syndrome or any part of it, such as the metabolic increase, is due to a hyperthyroidism, the therapeutic policy outlined above is inadequate. However, there is no direct proof that the thyroid secretion is actually involved, for it is neither sympathomimetic [10] nor capable of sensitizing the involuntary nervous system.[11] It has a definite calorigenic capacity, however, and accordingly may be responsible for the transition from autonomic imbalance to exophthalmic goiter. In the absence of direct proof of a thyroid hypersecretion, many indirect claims have been made, the most important of which we shall now discuss.

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[5] Kessel and Hyman: Am. J. M. Sc. **165**: 513 (April) 1923.

[6] Lieb and Hyman: Am. J. Physiol. **63**: 83 (Dec.) 1922.

[7] At least plus 18 per cent. on three readings at forty-eight hour intervals.

[8] Kessel, Leo; Hyman, H. T., and Lande, Herman: A Study of Fifty Consecutive Cases of Exophthalmic Goiter, Arch. Int. Med. **31**: 433 (March) 1923.

[9] Starr and Means: Proc. Am. Soc. & Clin. Invest., May, 1924. Starr, Walcott, Segall and Means: Effect of Iodin in Exophthalmic Goiter, Arch. Int. Med. **34**: 355 (Sept.) 1924.

[10] Lieb and Hyman: Am. J. Physiol. **63**: 88 (Dec.) 1922.

[11] Lieb and Hyman: Am. J. Physiol. **63**: 60 (Dec.) 1922.

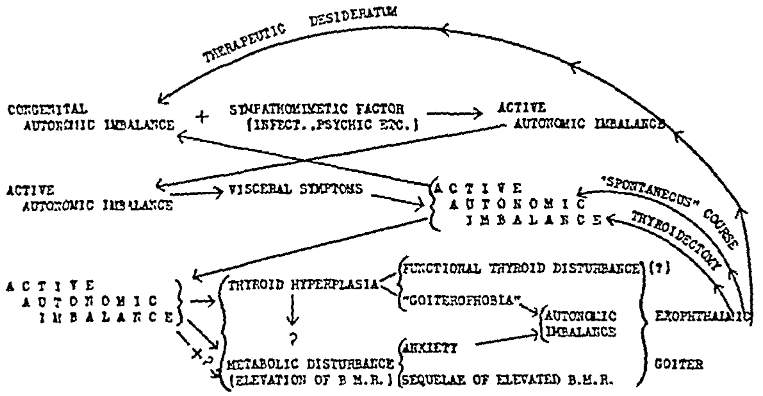
COMMENT ON INDIRECT EVIDENCE

1. *Feeding enormous quantities of thyroid extract may occasionally produce an incomplete picture of exophthalmic goiter.* Such results, however, are not brought about by doses of the extract that fall within the secretory capacity of the gland; they are further open to the objection that the results are inconstant and may partially be explained by impurities necessarily present in tissue extracts. Furthermore, at least two major symptoms—exophthalmos and hyperplasia of the thyroid gland—cannot be elicited. We have frequently injected intravenously into human beings pure thyroxin in doses comparable to a marked increase in secretory capacity. Doses of 0.005 gm. thyroxin have not, in our experience, regularly caused any symptom other than an increase in the basal metabolic rate. In normal persons this is not accompanied by the syndrome of exophthalmic goiter; in patients with true exophthalmic goiter we have caused an elevation of the energy metabolism but no definite and regular exacerbation of the symptoms of the disease. On the contrary, in the grave complication of exophthalmic goiter known as the "crisis," the intravenous injection of thyroxin [12] seems to be a distinctly beneficial, if not life-saving, procedure.

2. *Hyperplasia of the thyroid gland occurs regularly in exophthalmic goiter, and this has been interpreted as indicative of a hypersecretory state.* The hyperplasia, however, is not accompanied by any measurable increase in the output of the thyroid secretion and is caused by [13] and associated with a diminished storage of the iodin-containing hormone. The hyperplasia is, therefore, a morphologic indication, not of a secretory state but of a decrease in the storage of the hormone. In pigs, hyperplasia may be associated with a fatal myxedema ("hairless pig malady"). This exemplifies [14] the simultaneous presence of thyroid hyperplasia and an almost total suppression of thyroid function. The hyperplasia, again, may be made to revert to the colloid state by the administration of any iodin-containing substance, including thyroxin. These facts render untenable the hypothesis that hyperplasia indicates hypersecretion. We regard the theories of dysthyroidism and toxic adenomas as rhetorical substitutes for the hyperplasia-hyperthyroidism hypothesis. Until it has been demonstrated that a pathologic qualitative change may occur in gland secretion, discussion of dysthyroidism is "tilting at a windmill." No reliable data have been advanced to show that adenomas can become toxic, and this theory is opposed by the work [15] that indicates that in the same thyroid gland the nontumor tissue functions more actively than the tumor tissue. Again, adenomas are so constantly found in the hyperplastic glands of endemic goiter [16] that any theory involving their toxicity must explain away their nontoxicity in the preponderating number of instances, to say nothing of their presence in the glands of cretins in goiter belts.

3. *Myxedema admittedly due to a hyposecretion of the thyroid gland is the alleged antithesis of exophthalmic goiter.* But the analogy is far from complete. Indeed, the two conditions have in common such characteristics as the lymphocytosis, and the changes in the sugar and nitrogen metabolism.[17] Furthermore, the two conditions may coexist, as is most often seen in patients, who, after subtotal thyroidectomy, have both the residual symptoms of exophthalmic goiter and a postoperative myxedema.

4. *The relief of the symptoms of exophthalmic goiter following subtotal thyroidectomy is the most potent and important clinical indication in favor of the participation of the thyroid in the development of exophthalmic goiter.* Surgical enthusiasts claim that the operative procedure is specific and curative. Previously they waxed equally enthusiastic with reference to vessel ligation, hemithyroidectomy and partial thyroidectomy. Now all seem agreed that the truly specific procedure is subtotal thyroidectomy. If this procedure were truly specific we should expect a rapid and complete detoxification, uninterrupted convalescence and a permanent eradication of the disease. The actual facts are difficult to elicit and more difficult to interpret; for, in the first place, the technical procedure is associated with at least two homely and vital therapeutic procedures—rest and psychotherapy, to say nothing of the preliminary detoxification with iodids. We have previously reported the efficacy of rest unassociated with purposeful psychotherapy. More than 80 per cent. of our patients were economically restored on an average of three months from the date of admission to the hospital, and today, on an average of forty-six months from the admission date, 54 per cent. of the whole group are still enjoying a relatively uninterrupted and spontaneous relief from their symptoms.[18] These figures represent a minimum, and we have purposely erred on the side of a conservative interpretation of results, so that in comparing the effects of specific therapy we might not deprive any patient of any potentially beneficial therapeutic procedure. As operative procedures include a preliminary period of rest during which the patient has preparatory operations or roentgen-ray therapy in addition to iodization, and a postoperative convalescence that includes weeks and often months of rest, before the effects of the specific therapeutic procedure can be evaluated, there must be subtracted such results as may be due to the nonspecific factor of rest.


THERAPEUTIC DESIDERATUM
CONGENITAL AUTONOMIC IMBALANCE
+
SYMPATHOMIMETIC FACTOR (INFECT.,PSYCHIC ETC.)
ACTIVE AUTONOMIC IMBALANCE
ACTIVE AUTONOMIC IMBALANCE
VISCERAL SYMPTOMS
ACTIVE AUTONOMIC IMBALANCE
"SPONTANEOUS" COURSE
THYROIDECTOMY
ACTIVE AUTONOMIC IMBALANCE
THYROID HYPERPLASIA
?
FUNCTIONAL THYROID DISTURBANCE (?)
"GOITEROPHOBIA"
AUTONOMIC IMBALANCE
ANXIETY
×?
METABOLIC DISTURBANCE (ELEVATION OF B.M.R.)
SEQUELAE OF ELEVATED B.M.R.
EXOPHTHALMIC
GOITER

An outline of the successive steps in the evolution of exophthalmic goiter. The effects of therapy and the therapeutic desideratum are indicated.

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[12] Kessel, Leo; and Hyman, H. T.: Exophthalmic Goiter (Graves' Syndrome) and Involuntary Nervous System, XI, Causes of Death, with Especial Reference to Pathology and Treatment by Thyroxin of "Acute Crises," J. A. M. A. **84**: 1720 (June 6) 1925.

[13] Marine: Arch. Int. Med. **4**: 440 (March) 1909; **6**: 506 (April) 1910.

[14] Smith: J. Biol. Chem. **33**: 313 (Feb.) 1917.

[15] Graham, A.: J. Exper. Med. **24**: 345 (Oct.) 1916

[16] McCarrison: Proc. New York Path. Soc. **21**: 154, 1921.

[17] Janney, N. W., and Henderson, H. E.: Concerning the Diagnosis and Treatment of Hypothyroidism, Arch. Int. Med. **26**: 297 (Sept.) 1920.

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A second procedure that is included in the operative results is psychotherapy. The importance of anxiety and fear in activating autonomic imbalance is equally great in the activation and perpetuation of the symptoms of exophthalmic gioter. Our patients almost without exception give a history of psychic trauma preceding or associated with the development of the symptoms of exophthalmic goiter. In addition, almost all have a true "goiterophobia" and regard the lump in the neck as the symbol of the disease. Eradication of this symbol is not only a surgical but a psychotherapeutic procedure; for to the patient, the removal of the symbol is synonymous with the eradication of the disease. The reassurance of the surgeon, who believes that his technical procedure is a specific measure, is an added factor in the establishment of this psychotherapeutic technic.

This factor, then, makes an interpretation of operative results all the more difficult. The results following operation, moreover, are not clear cut. Usually there is an immediate and definite fall in the basal metabolic rate, a slowing of the pulse rate and a diminution of many of the manifestations of the disease. These immediate operative results are due to the ablation of thyroid tissue. But this does not necessarily mean that the procedure is truly specific. The thyroid is but one of many factors that control energy metabolism. The fall in the basal metabolic rate following thyroidectomy is no more indicative of a specific effect on the etiologic agent than the antipyretic effect of the coal-tars in pneumonia is indicative of a specific effect of the drugs on the pneumococcus. It is reasonable that a fall in the basal metabolic rate should follow thyroidectomy in patients with exophthalmic goiter as well as in normal persons. From our observations, the fall is not specific. It is, in our opinion, nonspecific and may be considered as a grafting of an imperfectly antagonistic disease (myxedema) on another disease (exophthalmic goiter). The result is a cancellation of some of the manifestations of the preexistent disease. Again if the procedure were specific, there should be no residua and no recurrences.

In our experience, as in the experience of Judd[19] at the Mayo Clinic, residua—particularly exophthalmos, tremor, asthenia and palpitation—are commonly observed, and in addition we have seen true exacerbations of exophthalmic goiter in patients who have had a sufficient ablation of thyroid tissue to give them a basal metabolic rate that was subnormal. Very often, thyroidectomy is a helpful measure and succeeds in the alleviation of many of the symptoms of the disease. If these benefits could be accomplished at no risk to the patient, the end might justify the means. But the cost of thyroidectomy is great. There is frequently associated an alarming postoperative reaction—the "crisis"—and the general mortality is between 8 and 12 per cent. There are those who report an operative mortality for subtotal thyroidectomy in true exophthalmic goiter of less than 1 per cent.[20] Such exceptional surgeons are, indeed, to be commended for their skill; but in the hands of all others to whom we have spoken, the operative mortality is increased tenfold. When this risk is considered, in discussing the management of the individual patient; when, in discussing previous experiences with subtotal thyroidectomy, the late results with residua and exacerbations are brought up; when, from the good results, are subtracted such benefits as may have been derived from rest and psychotherapy, the establishment of a definite therapeutic policy furnishes a problem of nice discrimination.

This indirect evidence tending to demonstrate the thyrogenic factor in the etiology of exophthalmic goiter is not convincing. At best, the thyroid gland is but one of perhaps many etiologic agents. Despite a great deal of careful work, the administration of its products has not regularly produced the disease, nor has its removal regularly and completely cured the disease.

The pathogenesis of exophthalmic goiter is still open to question, and the therapeutic desideratum is still to be established. In our opinion, these problems will not be solved until we can determine the sympathomimetic influences that activate the quiescent autonomic imbalance and that may, under extraordinary circumstances, superimpose on the active autonomic imbalance the metabolic upset which determines the transition to exophthalmic goiter.

SUMMARY

The discussion of the pathogenesis of exophthalmic goiter is reopened because it is as yet an unfinished problem. In our opinion, exophthalmic goiter is a complicated disease, based on a disturbance in the involuntary nervous system, activated by many sympathomimetic factors of which infection and psychic trauma are examples, and superactivated, if you will, so that there is produced a metabolic upset whose origin is obscure—which may be thyrogenic, but which probably is not. An understanding of the steps in the development of the disease may serve to facilitate the study, to evolve new therapeutic procedures and to evaluate the old. The therapeutic desideratum is not yet approached, and should strike back, not at the cause of the metabolic upset, but at the sympathomimetic influences that are at the very basis of this and allied disorders.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HIGGINS, AND HYMAN AND KESSEL

Dr. Lewellys F. Barker, Baltimore: I agree with Dr. Higgins that in thyreopenia the pulse may be accelerated. The patients complain of myalgia, of chronic constipation, and of dryness of the skin and hair. Some of them have ruddy cheeks and most of them are sensitive to cold. Drs. Hyman and Kessel have drawn our attention to the neural rather than to the glandular features of exophthalmic goiter—a return to the view held in pre-endocrine times. As I understand their conception, they combine the idea of a constitutional predisposition with that of additional factors that make the potential condition become an actuality. The evolution of the malady, they believe, occurs in two steps: (1) the transformation of a potential autonomic imbalance (by means of psychic insult, or of infection) into an actual imbalance, and (2) the acceleration of the basal metabolic rate, which they do not attempt to explain though they say it may not be of thyroid origin. This conception is interesting and should be carefully considered. I should like to ask Dr. Hyman what proportion of the cases had very high basal metabolic rates? The conception of hyperthyreosis as an explanation of exophthalmic goiter is not so well founded as we should like it to be. Hyperthyreosis, hypothyreosis and dysthyreosis are hypothetic constructions, which physicians have set up in the attempt to explain certain clinical syndromes; but whether such hypothetic constructions are valid is a different matter. It is the task of pathologic physiology to be critical of such hypothetic constructions, no matter how helpful they may be as working hypotheses. The marked increase in the basal rate in exophthalmic goiter and the fact that removal of part of the thyroid in bad cases is followed by marked amelioration of the symptoms make me hesitate to accept the view that disturbance of thyroid function is not important in the pathogenesis of exophthalmic goiter.

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[19] Judd: Ann. Surg. **72**: 145 (Aug.) 1920.

[20] Pemberton, J. D.: End-Results of Surgery of the Thyroid Gland, Arch. Surg. **7**: 37 (Jan.) 1923. Crile, G. W.: Surgery Versus Roentgen Ray in the Treatment of Hyperthyroidism, J. A. M. A. **77**: 1324 (Oct. 22) 1921. Richardson, E. P.: Relative Value of Surgery and Roentgen Ray in the Treatment of Hyperthyroidism, ibid. **80**: 820 (March 24) 1923.

DR. I. H. MEANS, Boston: Dr. Higgins laid emphasis on a group of borderline cases with hypometabolism. I do not know the cause of these, but the important point to recognize is that some, if not all, of the symptoms can be relieved by thyroid. Thyroid should be used, however, with great care, and the metabolic rate should be followed. Another point that interested me was with regard to the pulse: I agree with Dr. Higgins that the pulse is an unreliable guide to metabolism. At the Massachusetts General Hospital, Dr. Field and Dr. Bock have been doing work on the minute volume of the blood in hyperthyroidism and hypothyroidism. In true myxedema they find that there is marked diminution of the minute volume of the heart, but that the stroke output is more reduced than the pulse. Emphasis has been laid by Dr. Higgins and by Dr. Barker on the type of indefinite pains seen in these cases. That interested me too, because I have seen it in my patients. There are intermittent pains resembling myalgia which disappear on thyroid medication. I have not the faintest idea of the actual cause of exophthalmic goiter. Dr. Hyman's hypothesis that there is a preexisting diathesis is an interesting one. Nevertheless, however much we speculate as to the cause, we must definitely decide about proper management of these cases. We must separate facts from theory in order to recognize the true indications for treatment. At present I believe that the thyroid, whatever the ultimate cause of the disease, is responsible through its overactivity for the more important symptoms. The effect on the circulation is partly that of simple elevation in metabolism which necessitates increase in circulation and overactivity on the part of the heart, and also perhaps in part that of nervous disturbances. The tachycardia in exophthalmic goiter is greater than one would expect on the basis of increased blood flow alone. This is important because tachycardia causes a wastage of cardiac effort; with rapid rates, total systole is increased and total diastole shortened. Dr. White has found that in a heart beating at 140, the total systole is 35 seconds a minute, and that with slower rate it may be 22 seconds. If that goes on for a long time, the effect is to deprive the heart muscle of its proper period of rest.

DR. SOLOMON SOLIS-COHEN, Philadelphia: As Dr. Barker has stated, the neurogenic theory of the origin of exophthalmic goiter is the older one, displaced largely through Kocher's work. Some observers, however, of whom I am one, have held to it throughout. We look on the goiter and the symptoms of dysthyroidism as incidents and epiphenomena. They may or may not be present. For that reason we prefer the term "Graves' syndrome" to indicate the fundamental disorder, on which the other features may or may not be grafted. The conception of autonomic imbalance, however, is much broader. It is that of an inborn, constitutional condition, out of which, according to the incidence of various exciting and determining causes, various syndromes may develop. Among the determining causes as well as the excitants are the vicissitudes of the patient's biologic history, both internal and environmental, and his native developmental tendencies. In 1893, I described, under the name of "vasomotor ataxia," a condition of instability of the neurocardiovascular apparatus through which its equilibrium becomes disturbed by causes of smaller degree than those necessary to affect the average individual; and by certain causes which do not affect the average individual at all. It was pointed out that this connection was the physiologic basis of many so-called idiosyncrasies, including hay-fever, asthma, angioneurotic edema, and other aberrant or exaggerated responses to excitants of various orders; and that it was frequently correlated with abnormal functioning of the thyroid gland.

Later, to express the idea more clearly, the term was amended to ataxia autonomica, with its English definition, autonomic imbalance, including the ideas of incoordination, instability, irregular function, etc. In the Osler Birthday volume the conception was still further enlarged to indicate a closer relationship with various endocrin disturbances.

These views have not met with general acceptance. I have therefore been very much gratified to hear the admirable paper of Dr. Hyman and his colleague, which in an entirely independent observation, traverses part of the same ground and affords, as far as it goes welcome confirmation. I have elsewhere expressed my objections to the terms used in apparent endeavor to escape the original one, by Eppinger and Hess, namely, "sympathicotonia and vagotonia," and by Morichau-Beauchant, namely, "angioneurotic diathesis"; and I am therefore still more pleased to find the present paper using, in apparent ignorance of my various discussions, that which I consider to be the inevitable term in a correct description of the conditions discussed—namely, autonomic imbalance.

DR. ELLIOTT P. JOSLIN, Boston: Care must be exercised in attributing a low metabolism to disturbance of the thyroid gland. In one group of diabetic patients there is a lowered metabolism. Prior to the work of Allen, diabetes showed a + 11 per cent., and after Allen's work started, the figures were — 11 per cent. Some of the patients had very low metabolism. I remember one which by either system, Du Bois' or Benedict's, showed from — 39 to — 44 per cent.; yet I do not think there was any hypothyroidism. These patients show dry skin, dry hair, constipation and nervousness, but they don't have headaches. As soon as they get more food their metabolism goes up. Therefore we should be very careful with this group of symptoms not to attribute it always to thyroid disturbance. In regard to goiter and mortality of operations for goiter, I am in a position to watch that, as each death in the Lahey clinic at the New England Deaconess Hospital comes under my supervision. I do not think that we should ask that the mortality in goiter should be lowered still further. It is low; it is as low as claimed by the clinic, and we turn over worse and worse cases all the time, even cases with very severe diabetes complicated with goiter. If these cases should present a high mortality, it is not against the surgeon. It is because we are taking advantage of his skill to stimulate him to do something still more wonderful.

DR. HENRY S. PLUMMER, Rochester, Minn.: It should be borne in mind that our concepts of thyroid function are largely working hypotheses which in writing and teaching are almost of necessity in sentences, paragraphs and even entire articles treated as established facts. It is impossible to avoid this and preserve a correlation of concepts except in long monographs or short articles of very limited scope. Dr. Barker's question of what was implied by the dynamic status of a cell calls for an involved statement. Briefly, it is the status that determines the quantum of energy transformed in a single excitation of a cell. Thyroxin, epinephrin, food and so forth are agents determining this status. I am one of the group who know but little regarding the etiology of exophthalmic goiter. Some of the theories that have been presented in the past may approach the truth, but to accept many of them at present necessitates a disregard of much contradictory evidence. That persons who through heredity and environment lack assurance and are prone to develop the phenomena of imbalance in the coordination of metabolic processes are also more prone to exophthalmic goiter has been recognized by most observers. On the other hand, no such evidence can be elicited in a study of many persons developing exophthalmic goiter. Furthermore, evidence of imbalance results from the physiologic status of the nervous system in exophthalmic goiter. Following the neurogenic hypothesis thus far, what I wish to insist on is the distinction of these phenomena of imbalance characteristic of man in general and the phenomena that characterize exophthalmic goiter. Our present hypothesis attributes the latter to the action of a toxin largely on the nervous system. This toxin may be an abnormal thyroid product or the product of the reactions of an abnormal thyroid product in the tissues of the body. Dr. Higgins presented a very interesting paper, one of a series that will in the near future flood literature. Regarding the majority of these cases with low basal metabolism, I wish to emphasize one point: Whether or not they are hypothyroid, we do not know. We do know that a high percentage of the cases that have in the past been diagnosed as neurasthenia, psychoneurosis or anorexia nervosa by neurologists, having much evidence of the autonomic imbalance described by Dr. Hyman, cannot be grouped with those cases which we know to be hypothyroid. We have hesitated to report this group as long as seemed practical as it opens up a vast field for the commercialists and the imaginative "endocrinologists."

Dr. William H. Higgins, Richmond, Va.: Dr. Joslin has emphasized an extremely important point in excluding contributory factors, such as diabetes, which could alter metabolism readings in the cases. Only by study of the patient as a whole can one arrive at definite conclusions. If there is the slightest doubt as to the result of the basal metabolism determination, it should be repeated over and over again. Those who are familiar with the technic of this test readily appreciate how easily errors can slip in. Thyroid extract is a potentially dangerous drug, and unless it is definitely indicated, as shown by a lowered metabolism, actual harm may follow its indiscriminate use. It is remarkable how the pulse rate varies from time to time. When comparative studies on the pulse are attempted, it is essential that the count be made under similar environments. A pulse rate at the end of the physical examination may very materially differ from the rate at the beginning of the examination and may show a wide variation from the record obtained at the end of the hour's rest.

Dr. H. T. Hyman, New York: Regarding those patients whose metabolism is above + 50 per cent., our average entrance metabolism is + 43 per cent., and we consequently see quite a few patients at a level of over + 50 per cent. I do not know whether the thyroid secretion is involved in these cases any more than I know its rôle in the milder cases. I have been confusing in my discussions of thyroidectomy. I was not discussing its therapeutic efficacy so much as its bearing on the pathogenesis of exophthalmic goiter. I do not deny that patients are often strikingly improved by thyroidectomy, though whether the results are better than in the "spontaneous course" series, we shall not be able to state for some time. Naturally the basal metabolism falls after thyroidectomy for exophthalmic goiter, just as it would fall after thyroidectomy in normals. But this fall does not prove that the elevation of the basal metabolism in exophthalmic goiter is necessarily thyroidal in origin, for it may be nonspecific, just as a fall of temperature following sponging in pneumonia is not a specific effect of the sponging on the pneumococcus. The mechanism of the therapeutic efficacy of iodids in exophthalmic goiter is interesting. It seems unlikely that they can diminish thyroid secretion. It may be that they supply a deficiency, for we think that at least some time in exophthalmic goiter there is a thyroid deficiency and we have reported what is apparently a life-saving therapeutic effect from the intravenous use of thyroxin in the febrile "crises" of exophthalmic goiter. I do not believe that the morphology of the gland throws any light on its function. I do not believe that adenomas can secrete an increased or altered and toxic secretion or that they are responsible for any clinical disturbance. Adenomas are frequently found in hyperplastic glands in normal individuals and tumor tissue in the thyroid cannot function as adequately as the nontumor tissue of the same gland. With regard to a therapeutic policy in exophthalmic goiter, we would be willing to waive objections to thyroidectomy on a basis of pathogenesis, if we could be persuaded that the procedure is innocuous and palliative. But we are not yet in a position to evaluate thyroidectomy in our own series and we are convinced that, while a small handful of men can and do operate for true exophthalmic goiter with a 1 per cent. operative risk, the general mortality rate is from 10 per cent. to 16 per cent. With regard to the work on the involuntary nervous system, the best clinical description of these disorders will be found in Trousseau. Our own work is not new. But we do wish to emphasize that there has not been demonstrated any relationship between the ductless glands and the involuntary nervous system. We regard them as independent.

HOT AIR COMFORT

ARE WE HYPERSENSITIVE TO TEMPERATURE AND HUMIDITY EFFECTS?

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Americans of a few generations ago lived in habitations and hostelries having temperatures of about 55 F., and, according to medical authority of 1820, this was the desired temperature even for hospitals, the sickroom and the nursery. "Not below 50 nor above 60" was the recommendation. We must infer that they considered this temperature comfortable and healthful. The comparison of 55 F. with the standard of today will bear some explanation. The fact is that the thermometer registered only the temperature of the air and did not give a reading of the actual comfort warmth, because in those days they depended on direct radiation, the luminous heat of the open fireplace. Radiant heat, like the sun's rays, does not primarily warm the air, but rather it warms the material objects of the room, including the occupants. The interception of the luminous rays was the chief source of heat, and there was only a secondary effect on the air, owing to indirect radiation from fireplace lining and fixtures and from the warmed material objects.

This was artificial heating applied in a natural way, an imitation of sun heating. Hence, a comparison of the past and present must take into consideration the fact that 55 degrees, as the standard, did not express the degree of comfort warmth of their habitations. Our forefathers did secure healthful comfort, even though they were in an atmosphere that registered only 55. Now we demand 15 degrees higher as the average comfort temperature of homes, schoolrooms, hospitals and hotels, having advanced, or perhaps one might say retrogressed, to about 70 as the average standard. Even 75 is not rare in our offices and habitations.

HEATING METHODS

Let us review the evolution of heating methods and, by reference to the law of physics, as applied to artificial heating, determine how and why we have drifted into our present unhygienic habit of being abnormally sensitive to temperature and humidity. Europeans—in fact, all peoples in the comparable zone and, in particular, our cousins in England and Canada—still have a comfort standard of about 60.

Fire was man's first friend in his primitive state; it made possible progressive evolution and brain development. Are we from 10 to 15 degrees more brainy, and are we hotter on the trail of truth than any other peoples, or are we physically declining in resistance to nature in her frigid moods?

Sensitiveness to temperature and moisture (what we call weather) variations is largely a matter of habit. It becomes a factor in resistance to infections, lowers vitality and retards convalescence. If we admit that we are 10 degrees more sensitive, is it not about the same as saying that we are correspondingly more subject to acute infections? Such a question must awaken a solicitiude in the minds of hygienists. Medical observers abroad assert that the American soldier in service was less tolerant of the cold in field service, in barracks and in hospitals, than was Tommy Atkins or the poilu. The reason is apparent. The man who is accustomed to a 60 degree living standard is less sensitive and is more resistant to low temperatures than one habituated to the 70 degree standard. The acute infections of our training camps can be partly ascribed to the upset of physiologic functions, as the result of hypersensitiveness to temperature changes.

We have drifted away from the standard of other peoples. American tourists abroad usually complain of the cold reception they get in travel, in museums and in hostelries, thereby advertising our inability to adapt ourselves to the foreign standard. An Englishman said that, when he first experienced American hospitality, he often felt like rushing outdoors to get a breath of fresh, cool air. A Canadian engineer, for some time a resident of the United States, confided that he loved this country and the people in the summertime, but that he and his wife were socially ostracized in the winter season, because they could not endure the hothouse reception of the American home. A New Zealander and his wife came to this country from a climate similar to that of California, intending to spend a month or two. They landed in New York in January, put up at a fine hotel, and hastily left in four days for Canada—to cool off. These Britishers were uncomfortable here, not merely because of our high temperature, but because of an unendurable combination of overheating and dryness of the air in our dwellings and hotels. These are samples of current criticisms on American heating standards.

A radical change in heating methods began with the Franklin open firebox in a cast iron stove; then came the sheet iron stove of the early part of last century. The hot air furnace and the hard coal baseburner came in about 1850, and soon afterward the steam and hot water radiators became popular. Invention and a superabundance of fuel were very seductive to a radical change in artificial heating, and we find the heat comfort standard steadily advancing. Even as late as 1860, it was still below 65 (62 was considered temperate), but it mounted to about 72 very soon after that time, and it has not dropped a degree, except during the war when the government pleaded for fuel conservation, and we endured 65 for a short time.

What is the essential feature of this radical change? It can be expressed tersely as the substitution of direct radiation, or radiant ray heating, by indirect radiation methods. The former gave a comfort warmth with a comparatively cool air content. The latter method depends on conveying heat by the hot air medium.

HEAT TRANSMISSION

This introduces the subject of the physics of heat transmission. Dry air is not a good comfort heat carrier, but moist air is. Saturated air (100 per cent. relative humidity) at 100 F. has about the same heat convection property ("effective temperature") as the same amount of dry air at 300 F. This comparison *of moist and dry air as heating mediums explains the* high American comfort standard. We are trying to get comfort warmth by using dry air as the medium of heat convection. The hothouse habit is a perfectly natural result.

A brief discussion of humidity may be necessary in order to explain what we mean by dry air. Water vapor is a natural constituent of atmospheric air, but there is no natural affinity between air and water vapor. The diffusion of water vapor in still air is dependent on vapor tension, and the meaning implied by "water hunger air" is a faulty conception. The problem of artificial humidification—the effort to keep the air of habitations healthfully moist—is the promotion and regulation of evaporation and the diffusion of the water vapor. In its application to habitations, it is not easy to solve. Air can carry water vapor, but it does not hunger for it; in still air, water vapor diffuses slowly. The whole process requires artificial aids; it is a real engineering problem.

Air has a definite capacity for holding water vapor, depending on its temperature. At 30 F., a cubic foot of air can hold only about 2 grains (0.13 gm.) of water vapor. At 72, a cubic foot of air can hold about 8 grains (0.5 gm.) of water vapor. In both instances, the saturation would be 100 per cent. relative humidity. The average relative humidity during the cold season in the temperate zone is high; that is, from 70 to 80 per cent. The temperature with which we are most concerned in this article is the low range, the freezing point or below. A 30 degree temperature and an 80 per cent. relative humidity means that each cubic foot of outside air carries less than 2 grains (0.13 gm.) of water vapor. When we convey this air into our habitations, either by the hot air furnace method or in the radiator heating systems by a natural leakage, and heat it up to 70, we have reduced the relative humidity to about 20 per cent. Obviously, we are trying to convey heat from stoves, furnaces or radiators through the medium of what may be called a very dry air, containing less than 2 grains (0.13 gm.) of water vapor per cubic foot (actually nearer 1½ grains [0.1 gm.] but allowance is made for body moisture, etc.). The lower the outside temperature the less is the natural water vapor (absolute humidity) content. At 20 degrees or below, there is about 1 grain (0.065 gm.) of water vapor per cubic foot brought into contact with the heater, and the relative humidity of this air, when warmed to 70, may be as low as 18 per cent. or even 15 per cent.

An indoor relative humidity of 20 per cent. has a dry-kiln effect; the walls and woodwork dry out, flowers wilt, exposed food becomes desiccated, complexions suffer, vigor is sapped by nervousness, efficiency is lowered, and even the furniture complains. Just as the piano is liable to be out of tune, so is domestic harmony. Hot air furnace heated houses will show a relative humidity as low as 15 per cent. on a very cold day. I have tested many office rooms in high buildings (steam heated, with pendent water evaporators) that gave a relative humidity of 17 per cent., and even as low as 14 per cent. An average of fourteen rooms gave 19 per cent. relative humidity. In high office buildings without artificial ventilation, each successive floor has a reduced humidity, as the structure is like an air-shaft, the natural movement of air being from below upward.

It is difficult to produce an evenly diffused humidity, when the very elements involved are contrary, and *when the average human being makes a demand almost* unpractical. Our forebears did not bother about this question of indoor humidity because they did not overheat the air. At their standard comfort temperature, say from 55 to 60, the relative humidity would not drop below about 35 per cent. and was probably higher even in the coldest weather because, to put it tersely, they lived in closer contact with the culinary department, and there was constant renewal of the water vapor content. Frosty window panes were more in evidence in those days.

We must recognize the fact that, in the heating of habitations, water vapor is the caloric comfort factor. In the humid summer season it becomes the discomfort factor, and likewise in winter when a cold damp atmosphere chills us even through our clothing.

Another interesting observation confirms the statement that we are depending on hot dry air for heat transmission. Dust, suspended in the air of a room, deposits on the surface that is cooler than the air, just as water vapor deposits on the cold window pane. The ceiling and wall above a radiator soon blacken with the dust accumulation; this is a characteristic of the hot air method of heating. Obviously the heat conveying quality of the air—i. e., the "effective temperature"—depends on the water vapor content. Consequently the habit of attempting to get comfort warmth by the medium of very dry air naturally results in an absurdly high comfort standard. It is unscientific, unhygienic and extravagant. This is a good example of a vicious circle; the higher the temperature, the lower is the relative humidity, and the lower the relative humidity, the more necessary it is to have a high so-called comfort temperature.

COMFORT

The word extravagance should be explained. The percentage of heat loss varies with the comparative temperature inside and outside, and is modified by wind pressure, window exposure, leakage and porosity of structure. As we raise the inside temperature from 60 to 70, there is a higher percentage of loss than in heating from 50 to 60. It will take almost as much coal to heat from 60 to 70, as from 20 up to 60. This comparison implies more or less imperfection in heating apparatus and faulty house construction—there are many factors involved not possible to estimate theoretically—and the only fact to be impressed is that a high comfort temperature should be classed as an extravagant luxury. The practical point is that a reduction of even 5 degrees means less extravagance. How can this be accomplished without discomfort? The answer is by conditioning the air used as a heating medium. We should have a proper water vapor content in our habitations and office rooms. This is the engineering problem. The first step is to create a popular demand and establish practical standards. Invention will respond to the demand. (The kind of occupation, the physical activities and the sedentary habits of a room's occupants have a bearing on the relation of humidity to comfort and efficiency; the rate of movement of the air content is also a factor. It seems best to limit this discussion to ordinary sedentariness in still air, such as obtains in homes and offices.)

In order to aid in establishing a standard, we may call attention to a yearly occurrence. In the fall of the year, the air of our houses has about the same relative humidity as that outside, owing to the free ventilation of the season. The contents of the house have absorbed moisture up to the normal. Cool days come, yet we are in no haste to light the furnace fire, an occasional open fire of an evening being sufficient. If we take a look at the thermometer, we find that there has been no complaint of discomfort even at 63 or 65 degrees. This means that the vapor content, probably near 50 per cent. relative humidity, warmed to 65 degrees, gives comfort, even though we have not donned cold weather clothing. That helps to fix a temperature standard, but it must be said that 50 per cent. relative humidity is rather too high for artificial humidification. The hygienic standard should be 65 degrees with from 35 per cent. to 40 per cent. relative humidity, for persons of normal health and vigor. Sixty-eight degrees of temperature with about 40 per cent. relative humidity should be the accepted maximum standard. This is a practical compromise, with a prospect of a progressively improved hygienic standard.

The term comfort zone, as used by heating engineers, merits explanation, because it is suggestive of the tendency of authorities on the subject to encourage a rather high temperature standard. For instance, 74 degrees and 20 per cent. relative humidity is reckoned as the comfort line, as also is the combination 70 degrees with 46 per cent. relative humidity. By contrast, we note that 68 degrees would require a 63 per cent. relative humidity to be at the same comfort line. It is impracticable to maintain a relative humidity above 40 per cent. in habitations, and, consequently, we tend to take the most convenient course; that is, to tolerate the standard of about 75 degrees with about 20 per cent. relative humidity.[1]

Hothouse coddling results in vagaries in wearing apparel. Fads cut loose and run to extremes. Just now, the lower extremities are on parade, and the fashions of the day exemplify the saying that clothing is for adornment and has little or no relation to comfort and utility. The high temperature standard tends to foster freak dressing, and one half-clad office employee dictates the temperature standard to others. The same is true of groups in public conveyances and in the home. The hypersensitive one compels all to tolerate his standard.

The thermometer is not popular nowadays. This is an age in which sensations alone can be depended on; and the worst of it is, that in a controversy, perhaps with her husband or the manager who relies on the mercury, it usually turns out that the complainant wins. A temperature of 70, with a very low relative humidity, may be actually chilly. So we stoke up the dry-kiln heater and roll along in the vicious circle with the comfort goal receding.

The skin and respiratory mucosa form the great, expansive sentinel area regulating the vasomotor system and heat loss. Evaporation from this area dissipates heat, and in a very dry atmosphere there may be a feeling of chill, even though the thermometer reads 70. The conventional clothing of civilization, combined with unhygienic heating, has literally doped the sentinel into sluggishness and has upset the physiologic function of the heat regulating mechanism. Sensations of discomfort follow and the subtitle of this article is confirmed: We are hypersensitive.

TYPES OF FURNACES

I have said that artificial humidification is an engineer's problem. For instance, in a hot air furnace system it is necessary to change the whole cubic air content from three to five times an hour, in order to convey the heat in very cold weather. To insure rapid changing, the air must be delivered from the furnace at from 120 to 150 degrees (some advertise 190). That is ventilation, surely, but it is a progressive desiccated process. Unless moisture is added, there is 15 to 20 per cent. relative humidity, and the more rapid the change, the lower the actual vapor content. In a nine-room house of about 20,000 cubic foot capacity, it would be necessary to vaporize 3 quarts of water an hour, more or less depending on the outside temperature, and on the inside temperature demanded. (If bedrooms and kitchen are not reckoned, the total is reduced.) As compared with 70 degrees, a standard of 65 would require about one-third less added water vapor to maintain a 35 to 40 per cent. relative humidity. The lower the standard temperature the less is the amount of water to be vaporized. But at least from five to eight gallons must be vaporated to maintain a fair humidity under the conditions mentioned—a nine-room house, hot air furnace and cold weather.

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[1] The sling psychrometer, as used by U. S. Weather Bureau, is the most reliable humidometer. Stationary humidometers give misleading data, and textbooks and current literature give evidence of faulty readings of apparatus of precision. Even temperature-taking requires special precautions, such as properly placing the thermometer, and in comfort arguments the personal prejudice must be eliminated.

The term hot air furnace in this article is applied to that kind of a heating system which has only the direct cold air intake, without provision for rotating or recirculating the air of the house. When the outside temperature is very low, say below 20, the furnace must be very hot, the air must be delivered at the register superheated and, in order to convey sufficient heat, the air content of the rooms must be changed three or more times an hour. This is equivalent to heating three or more times the actual cubic air content of the house. Most of these hot air furnaces have a small water pocket in the side of the sheathing of the furnace, but the amount of water actually evaporated is negligible—it makes no impression on the relative humidity of the air of the house. The enormous amount of air in circulation makes humidifying unpractical. Such is the type in general use, and the term hot air is used as a selling attraction.

A heating system called the warm air furnace system is winning favor. The essentials of this system are a comparatively larger heating chamber and a perfected method of rotating (recirculating) the air, the return flow to the furnace coming from the cooler parts of the rooms or the hall. Fresh oxygen is supplied by natural ventilation. There is also leakage and a partly opened window situated just above the return flow register makes it practical to let in outside air without perceptible floor drafts. The working result is the warming of a large volume of air which enters the heating chamber not below 50 degrees and which is delivered at the register at a lower temperature than in the hot air system. Consequently the rate of air movement is slower, and it is practical so to condition the air that a fairly healthful humidity is assured. This is accomplished by an evaporating pan of considerable surface area, constructed as a part of the casting of the furnace. The water supply to this evaporating device can be regulated by the visible drop method. This special system is proving its claim to be called the warm air system. Recirculation gives air movement and even diffusion of water vapor, and the practical result is comfort at 68 degrees with 35 per cent. to 40 per cent. relative humidity.

The regulation of natural ventilation by windows or special devices will give a constant oxygen renewal, and as the inflow is influenced by the direction of the wind—a positive pressure on the windward and negative pressure on the leeward side—it is of advantage to have available ventilation inlets on at least two sides of the house.

Some furnace systems combine recirculation and air direct from the outside to the furnace heating chamber. This is more complicated to manage than ordinary natural ventilation, because of the above mentioned variation in air pressure, with varying winds.

Steam and hot water heating systems depend on leakage and natural ventilation for air renewal. The very names suggest humidity, but that is a delusion. A house heated by radiators can become just as dry as one heated by a hot air furnace system. It is difficult to vaporize water from a pan on the radiator, because the temperature is not high and diffusion is slow. One can make an impression on the average humidity by assiduous attention to many evaporating pans, but it is a real task—gallons to be evaporated daily—and, at best, only a partial success. Even a 30 per cent. relative humidity will help bring down the comfort temperature, and that is worth while. (The pendent water holders are quite useless, but there are some very effective evaporating pans on the market and also steam and water jet vaporizers more or less practical.)

We have considered three types of heating methods: the hot air furnace, the warm air furnace system and steam and hot water radiator heaters. Humidifying is difficult in all, but the warm air recirculation system combines a healthful humidity with fair ventilation. The hot air furnace and radiator systems, and likewise stoves, exemplify the statement that indirect radiation attempts to convey heat by the medium of very dry air. These types are the most popular heating systems, which have during the last half century made us victims of the hot air habit.

The various methods of humidifying the air, all with more or less complicated operating detail, emphasize the fact that this is a difficult problem, approach it as one will. It is one of the complexities of the artificial life, the outstanding feature being the high temperature standard which tends to make healthful humidification almost unpractical.

The reaction against frosty window panes is due to the notion that they always indicate bad air. This has been and even today in certain instances may be a correct inference, but we have gone to the other extreme in avoiding humidity. We should appreciate that with a properly conditioned air in the home a considerable frost deposit on the window is, in cold weather, one indication of a healthful atmosphere.

The open fireplace should not be neglected as a factor in home comfort. Its function is to supplement indirect radiation by direct luminous ray heating, in cold weather and between seasons. Properly utilized, the oldfashioned fireplace will help to bring comfort at a moderate temperature.

VENTILATION

Ventilation must be included in a hygienic survey of heating systems. I have left it for a closing comment, because, generally speaking, it is of comparatively less importance in the home life than is air conditioning. The cubic content per capita is usually ample to supply oxygen, and generous ventilation of bedrooms is the usual practice. A few years ago hygienists concentrated on carbon dioxid as the health destroyer, but now they understand that this exhalation gas should be considered merely as an index of air vitiation, and that it is deleterious chiefly because it displaces oxygen. The ventilation and humidification of the air of schoolrooms, hospitals, auditoriums, etc., presents special engineering and hygienic problems, the discussion of which would confuse the main issue. Air conditioning has already made great progress in certain commercial institutions, proving that it is practicable.

One of the striking results of a high comfort temperature, from 70 to 74, for instance, is that the occupants of a room become hypersensitive to drafts. The hotter the air content, the more shocking the effect of a cold air current sweeping along the floor from an opened window. Air from outside does help to restore invigorating oxygen, but it does not materially affect the moisture content, because the absolute humidity of cold air—the water vapor content—is very low and, when warmed up to 70, this volume of fresh air soon becomes about 20 per cent. or less relative humidity.

Ventilation should be practiced consistently, and this is one of the objects to be attained by conditioning the air of habitations to the proper humidity standard. The fact is that a healthful degree of humidity, and the moderate temperature that goes with it, mitigates the cold shock of a draft of outside air. The warmed water vapor, permeating even the clothing, prevents sudden chilling, and a healthful humidity becomes a factor in reducing the shock of cold, damp air on the mucosa of the respiratory tract. We would hear less about the beastly climate, if we were not made soft by the hothouse habit. The popular annual migration to the sunny southland is a confession of discomfort in office and home life; we exaggerate the vicissitudes of weather. This kind of complaining carries an admission of lowered vitality in physiologic resistance to cold.

SUMMARY

Americans are becoming progressively more sensitive to temperature and humidity.

The popular demand seems to be for higher radiation capacity in the home, in hotels and in public conveyances. (What a shock it would be to the heating trade if we accepted a 65 degree standard.)

Climatic conditions and sudden variations of weather are naturally very trying and we invite cold shock by hypersensitiveness.

Unhygienic heating combined with foolish estheticism in clothing (e. g., chiffon to furs) results in acute and chronic diseases of the upper and lower respiratory tract. Catarrhal affections, such as chronic sinusitis even in young children, are far more prevalent than should be tolerated by an enlightened, intelligent people. Medical progress in the study of causes of such diseases is one of the outstanding features of this age, but treatment and cure are handicapped when the unhygienic habit is in itself chronic.

The complexion is the color index of good blood and normal skin circulation. It is notorious that in America the natural color index is fading and the cosmetic index is correspondingly high. The skin, like the respiratory mucosa, is actually damaged by hot dry air (and likewise is the hair) and become more liable to chronic diseases.

Our present high temperature standard so lowers natural resistance to minor and major infections that restoration to normal health is retarded. The fresh air treatment of hospital surgical cases is testimonial to the healing virtue of tonic temperature and natural humidity in convalescence.

We must not delude ourselves into thinking that invention in the line of better conditioned warm air in our habitations is going to be given to us without rational effort on our part. Public sentiment must be educated to demand the reform, and the heating and ventilating business will surely respond. But even with perfected mechanical humidifying devices the desire to live hygienically can ge realized only by sustained, intelligent effort. We need a new conception of the deeper meaning of that good Anglo-Saxon word comfort.

316 Michigan Street.

ROENTGEN-RAY TREATMENT IN BRONCHIAL ASTHMA AND CHRONIC BRONCHITIS *

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This paper is not intended to be a presentation of anything absolutely new, but is rather a fresh emphasis on a field of radiation treatment that has been largely neglected in this country. The roentgen-ray treatment of bronchial asthma and chronic bronchitis has been developed chiefly in Germany. In fact, the available literature is almost entirely German. I know that some of the American radiologists have been using this treatment for years, but the value of the method has not yet penetrated the general literature.

Bronchial asthma is not, of course, a true disease entity; it has a wide variety of causes. The work, during the last decade, of Walker and his associates on the intrinsic specific causes of asthma has widened this field considerably. The present ideas with regard to anaphylaxis and protein sensitization have made the treatment of many of these cases much easier and much more hopeful. In addition, the recognition of extrinsic causes of asthma, such as nasal polypi, spurs, hypertrophied turbinates and chronic diseases of the abdomen, has been another help. In many of these cases, removal of these pathologic conditions has resulted in the entire disappearance of the asthma.

In spite of the valuable work in the fields mentioned, there are many patients who have undergone all types of sensitization tests, vaccine treatments, and removal of pathologic conditions in the upper respiratory tract, and yet their asthma has persisted, with perhaps an increasing frequency and severity of the paroxysms. It was just this type of unsatisfactory case that attracted my interest to the possibilities of roentgen-ray treatment.

One of the difficulties in the application of any novel therapeutic method is the fact that the exact mechanism of its action may not be entirely clear. That need not necessarily prevent us from employing the method. We are all familiar with the wonderful results that have been obtained by roentgen-ray treatment in various blood diseases, in diseases of the skin, in benign and malignant tumors, etc., yet in all these groups the exact mechanism of the beneficial effects of the rays has certainly not been worked out to a thoroughly satisfactory degree.

In the treatment of bronchial asthma with roentgen rays, two distinct methods have developed. Groedel and Lossen divide the methods into the direct and the indirect.

THE DIRECT METHOD

The direct method is the older one. This is the method of applying the rays directly to the thorax and its contained organs. The first cases date back to 1905, when Schilling accidentally discovered the beneficial effects of roentgen rays in asthma. He was making a fluoroscopic examination of the chest of an asthmatic patient for diagnostic purposes. This patient suffered from such severe paroxysms that he frequently had incontinence of urine and feces with his attacks. When Schilling saw the patient several days after this examination, the latter voluntarily told his physician that

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

for the first time in more than three years he had passed twenty-four hours without cough or expectoration. Naturally this excited Schilling's interest, and he started to treat other cases of bronchial asthma with roentgen rays. In most of the cases, he obtained an amelioration of the symptoms, a lessening in the amount of sputum and a lessening and even a disappearance of râles.

Since his time, a number of authors have contributed reports of similar cases. Steffan, Levy-Dorn, Epstein, Gottschalk, Immelmann, Bachem, Klewitz, Wetterer, Groedel and Lossen are the most prominent among the contributors to this field of therapy.

Wetterer also had some interesting experiences with accidental cures of asthma. He used the roentgen rays for the treatment of a case of acne of the chest and back, and also for a case of pruritus of the back and axillae, in which associated asthmatic attacks were found to have been cured.

Steffan utilized microscopic study of the sputum as a control in studying the effects of the treatment. He found not only a definite change in the amount and gross appearance of the sputum, but also a diminution and gradual disappearance of Charcot-Leyden crystals, of Curschmann's spirals, and of eosinophilic granules. Wetterer confirmed this and also found that the eosinophilia of the blood was reduced, following irradiation.

Schilling's last report was in 1910, at which time he had already collected sixty cases. He was able at that time to control the results in many of his earlier cases. He found that about one fourth of all the old patients had been definitely free from symptoms for more than two years. He was very enthusiastic about the method even in obstinate chronic cases, but felt that the chronic bronchitis of young people gave much more satisfactory results.

According to Schilling, the beneficial effects of the roentgen rays were due to the action on the ciliated epithelium in the walls of the bronchi, and particularly to the effect on the goblet cells which secrete the mucus. Gottschalk, on the other hand, believed that the action was primarily on the enlarged peribronchial and tracheobronchial lymph nodes. This is the idea that has pervaded the later literature, and seems to represent the general consensus of opinion. The presence of these enlarged glands is capable of causing irritation of the fibers of the vagus system. This irritation eventually produces the bronchial spasms that constitute the asthmatic paroxysm. Similar exciting irritations have been known to exist in such conditions as tumors and aneurysms. We have known for many years that roentgen rays are a valuable agent in producing a shrinkage of lymph nodes, enlarged from any cause. It is therefore reasonable to believe that in asthmatic cases, in which we can often roentgenographically demonstrate these enlarged nodes, the rays may have a similar shrinking action.

Holthusen has called attention to another possible explanation of the good results in the treatment of asthma. The desensitizing action of roentgen rays has long been known in connection with such conditions as pruritus, trigeminal neuralgia and sciatica. Here it is supposed that the analgesic action is due to a lowering of the threshold of sensibility of the nerve endings. In asthma, it is probable that a similar lowering of sensibility of the nerve endings of the vagus system might be produced following exposure to the rays.

Levy-Dorn and others have thought that, possibly, some of the results obtained in the relief of symptoms might be purely the results of suggestion. It is impossible, however, to explain on this basis the definite objective changes that result, particularly in the diminution in the amount and character of the sputum as well as in the lessening of the abnormal contained elements.

THE INDIRECT METHOD

The other general type of treatment is the indirect method, in which the rays are not applied to the thorax. This method, which has been utilized chiefly by Groedel and Lossen, also had an accidental basis. These authors were called on to treat a patient with leukemia, and they administered some roentgen-ray treatment to the spleen. The patient was a man, aged 56, who had been suffering from severe asthma for sixteen years. The physicians knew nothing about his asthma at the time, but continued to treat the spleen for leukemia. Nine months later the patient, whose leukemia had improved, told them that after the first application of the roentgen rays to the spleen, the asthmatic paroxysms had stopped, and there had been no return since. Following out this lead, they treated a number of other cases of asthma. Eventually they were able to report a series of forty-one cases of bronchial asthma in which the roentgen rays had been applied merely to the spleen, with no direct treatment of the thorax. Out of these patients, thirty gave excellent or good results as regards diminution or disappearance of the asthmatic attacks. In a number of cases, a single splenic exposure was sufficient to stop the asthma for weeks or months. More than three splenic treatments were not given in any case. Too frequent repetition was thought to be dangerous.

Groedel and Lossen also noticed that with the splenic exposure there was apt to be a general constitutional reaction of varying degree. In many instances, it was very severe and consisted of nausea, vomiting, headache, general prostration, possibly a rise in temperature, and sometimes diarrhea. Groedel noted that in the cases in which this reaction had been very severe, the eventual relief from the asthma was apt to be most striking and lasting. On careful study of the patients who recovered, he found that the great majority of them had had a very marked constitutional reaction. He concluded, therefore, that the severity of the secondary roentgen-ray reaction ran parallel with the amount of benefit to be derived from the splenic exposures. Incidentally, he felt that the constitutional reaction was due to a disturbance in the balance of the endocrine system. He did not observe any other bad results from the effect of the rays on the spleen. Some objectors thought that the treatment might produce splenitis or perisplenitis. No real evidence was brought out to show that this had ever been produced by the rays.

The explanation of the effect of splenic exposures is not very clear. Groedel was imbued with the idea of "Reizdosen," or stimulating doses, which Stephan had advocated. He believed that the small doses which reached the depths of the spleen stimulated it to the production of substances that acted like antibodies, and either modified the anaphylactic seizure or did not permit the production of the asthmatic spasms. This conception of stimulating doses is being gradually abandoned. In the present instance it seems more probable that the rays, even in small amounts, have some destructive action on the more embryonal cells of the splenic structure. The products of destruction probably initiate some sort of immunizing mechanism, acting possibly as antibodies, or perhaps stimulating the production of the latter. The recent work of Fried on the use of small doses of roentgen rays in inflammatory processes throws some light on the possible mechanism here.

COMBINATION OF DIRECT AND INDIRECT METHODS

In my own work on bronchial asthma, I have felt it desirable to use a combination of both the direct and the indirect methods. I expose the front and the back of the chest, and in addition give an exposure over the front of the spleen. In this way, I believe that the number of good results is apt to be greater than by the use of one method exclusively. We can get the good results from the chest treatment of those cases in which there is an obvious enlargement of the lymph nodes, and yet we will not miss the beneficial action in other types of cases in which it will be necessary to utilize the immunizing reactions.

I shall not attempt to present any statistical studies of my cases. The majority of the patients were treated in the roentgen-ray department of the Boston City Hospital. In a large municipal institution of this type, it is obviously impossible to follow up cases with any great satisfaction. In the future, however, I hope to be able to collect some figures regarding the permanence of the results and will submit them in a separate communication.

TECHNIC OF APPLICATION

The technic is simple. In the cases of true bronchial asthma I prefer to treat with the rays of short wavelength, using a voltage of either 170 or 200 kilovolts according to the apparatus available. The filter is 0.5 mm. of copper with 1 mm. of aluminum; the distance from target to skin is 50 cm. The dosage administered is from 10 to 15 per cent. of a skin erythema dose. I cover an area about 8 inches square over the front of the mediastinum, and a similar area over the back, at the same level. These two fields will include the main bronchial subdivisions. An area of the same size is treated with a similar dose over the front of the spleen. The three fields are treated on three separate days. In patients who are weakened by severe paroxysms, I prefer to have a day of rest after each exposure. This course of treatment is repeated if necessary in three or four weeks. Later treatment is guided by the condition of the patient and by the character of the constitutional reaction. Recently I have been cutting the dose down somewhat smaller and giving only from 8 to 10 per cent. of an erythema dose over each area. This is particularly advantageous with patients who are weak, and in whom we fear too great a secondary reaction.

I have noted the same severe general reactions that Groedel described, and also the parallelism between the severity of the reaction and the efficiency of the treatment. It seems to me that in the future we shall probably use smaller doses and perhaps avoid much of this reaction. By doing this, however, we may not get the prompt and effective response to treatment that we frequently obtain at present. This is one of the problems that remain to be worked out.

Clinically, some of the cases have presented very spectacular results.

One patient, J. G., aged 45, had had severe bronchial asthma for five years. He had undergone numerous courses of vaccine treatment with only temporary relief. For the last two years his attacks had been worse than before, and for one and one-half years he had never been more than several days without taking epinephrin. The spasms occurred chiefly at night, and he had acquired the habit of spending his nights sitting in a chair, dozing between attacks. Altogether, he had the worst case of asthma that I have ever encountered. I administered a course of treatment as described, with a day interval between the areas. There was a profound reaction, almost a collapse, lasting for a week. From the beginning of the prostration, however, the asthmatic attacks left him entirely. He did not have another attack for about four months, which was the longest interval without spasms for several years. At the beginning of a spell of cold weather he began to be uncomfortable. By giving smaller repeated doses I was able to control the paroxysms and make him fairly comfortable.

There is a wide variety of clinical response to the treatment. Some cases require only a single series of treatment, and may be symptom-free for many weeks or even months. It is best to be cautious and undertreat rather than overtreat. In a fair proportion of the cases there will be an initial increase in the frequency and severity of the spasms as well as an increase in the amount of sputum. For this reason I always like to treat one area at a time. If there is no increase in symptoms, I am ready to complete the series in regular order; otherwise, I prefer to wait another day. After the initial increase, in favorable cases the symptoms will begin to diminish and eventually disappear.

In addition to the cases of true bronchial asthma, the roentgen rays are of value in chronic bronchitis without any asthmatic symptoms. My own experience has been more with young children than with adults. The experience of the authors previously mentioned seems to agree generally that the treatment is more efficacious in younger persons. However, even in very long standing chronic cases some improvement may be produced. Of course, if permanent secondary changes have taken place in the lungs, the chances of relief from roentgen-ray treatment are not so hopeful. However, Schilling reports cases with definite bronchiectases in which he was able to measure the diminution in the daily output of sputum following the treatment. One case started with 75 c.c. daily, which diminished under roentgen-ray treatment to 5 c.c. within a few weeks. In my own practice, I have had two cases with bronchiectases of moderate extent. In both there was considerable relief from the treatment. In one of them, even though the rays were not applied to the spleen, there was a marked general reaction similar to that seen in the asthmatic patients.

In children, the treatment is especially applicable to the cases of slow disappearance of cough after pertussis. In many of these cases we are able roentgenographically to demonstrate enlargement of the tracheobronchial and mediastinal lymph nodes. Liebman of the Boston Children's Hospital, in a private communication to me, has described the results he obtained in a series of thirty such cases, practically all of which were cured by roentgen-ray treatment. I have also had cases of long standing cough in children lasting for some months, after an attack of influenza or grip. In these cases only a small amount of treatment is necessary. Sometimes three or four very tiny doses spread over an interval of two weeks will be sufficient to stop the cough. Liebman found that the roentgenographic examination of the chest after treatment did not show any very marked changes in the glandular conditions, although clinically the improvement was tremendous. This corresponds with my own experience in the few cases that I have been able to control by films after the treatment.

The technic with cases of chronic bronchitis is essentially the same as with asthma, except that the treatment is limited entirely to the anterior and posterior projections on the chest. I do not irradiate the spleen in these cases. The doses are slightly smaller than with asthma and are repeated every two weeks. In these cases, it is not necessary to use the short wave-lengths. If a spark-gap equivalent of 8 or 9 inches is available, we can use 3 or 4 mm. of aluminum and give 10 or 15 per cent. of the skin dose. With the very young children I give a much smaller dose, so that it can be repeated safely at intervals of twice a week.

SUMMARY

Many cases of true bronchial asthma do not respond to the removal of supposed extrinsic causes or to specific therapy, even though careful sensitization tests have been made. A large proportion of these patients may be markedly benefited by careful roentgen-ray treatment. In favorable cases there is a lessening and even a disappearance of the paroxysms and cough, a change in the amount and character of the sputum, and a diminution of the abnormal microscopic elements in the sputum.

Two types of roentgen-ray applications are used, one directed to the mediastinum and chest, and the other to the spleen. The mediastinal treatment probably has its effect through a shrinking action of the rays on the enlarged tracheobronchial and mediastinal lymph nodes, with subsequent diminution in the irritability of the local fibers of the vagus nerve. The mechanism of the effect through splenic exposure is not so clear, but may possibly be concerned with the release of antibodies which modify the anaphylactic seizure.

Chronic bronchitis without asthmatic attacks can also frequently be helped by application of roentgen rays to the mediastinum. The most favorable results are obtained in younger people, particularly in children who have persistent coughs after attacks of grip or pertussis. Cases of secondary bronchiectases that are not of surgical extent may be improved when other treatment is ineffective.

ABSTRACT OF DISCUSSION

Dr. Samuel Stern, New York: We have been doing this work for a great many years at the Mount Sinai Hospital in New York. We originally started by treating children who came to the clinic with asthma, and in whom roentgenogram showed that they had large glands at the hilum which we thought was possibly the cause of the asthma. After very few exposures, in the majority of these children, the asthmatic attacks decreased in intensity, and then finally after a comparatively short time, they disappeared altogether.

At this time, and for many years after that, we were using the low voltage treatment. We were filtering with 3 or 4 mm. of albumin, giving them half doses alternately from the front and the rear of the chest at weekly intervals. About a year and a half ago we took up the treatment of tuberculous adenitis with high voltage, with very small fractional doses, and we tried out the same technic in the treatment of these cases. The results have been most satisfactory. We give about one tenth of an erythema dose at weekly intervals. In the cases in which the asthma is due to an old unresolved pneumonia, our results have been even better. On examining them carefully, we find that usually there is some area in the chest which has not cleared up. This may be rather small, but a roentgenogram generally shows it, and a comparatively limited number of treatments bring on a resolution, with an improvement of the asthma. The splenic treatment spoken of by Dr. Gerber we have not tried yet. I am a little bit afraid to do much irradiating over a normal spleen. I do not mind treating the spleen when I feel that it is the seat of trouble, but I am a little bit reluctant to treat a normal spleen with a normal blood count. I do not know what doses these patients were getting. If they are getting only a very small fraction, such as a tenth or even less, I dare say it would be quite safe to treat them, and I am going to try it out. I should like to ask Dr. Gerber whether this series of cases that Dr. Groetel reports were all due to enlarged nodes in the chest, or whether there were other types of asthmatic conditions included. It is difficult to tell how the ray does its work in these cases. At one time, when we were treating with low voltage in comparatively large doses, we thought the action was direct on these nodes, making them shrink and disappear, though we found that often the asthma was improved before the nodes diminished much. But since that time, I think we have come to the conclusion that the rationale of the treatment is on a different basis. It is probably due to the more rapid stimulation of the antibodies.

Dr. Isaac Gerber, Providence, R. I.: I know that many Americans have been doing this work for many years, only unfortunately it has not spread over into general medicine. I have gone through the same attitude in regard to the character of the rays as Dr. Stern has. I have been doing practically all my treatment with the shorter wave lengths and copper filtration. I have been giving essentially the same dose as Dr. Stern, about 10 or 15 per cent., except that from now on I am inclined to give smaller and smaller doses. I am becoming convinced that the smaller doses will be much more efficient in starting these various mechanisms, and will be apt to produce far less harm. The same proposition applies to the spleen. With the dosages that I have been using, 10 per cent. or less on the spleen, with no repetition, or, perhaps, one or two repetitions at monthly intervals, I do not believe that any harm can result. With regard to the matter of unresolved pneumonia producing asthma, that is what I referred to, although I do not use the word pneumonia, in many of these cases of long standing cough after influenza or pertussis. Many of them are cases of bronchopneumonia that have not entirely resolved, and they can be demonstrated definitely on the roentgenograms. I feel that if this method is utilized more, we shall be doing an enormous amount of benefit for patients who are now shoved off in the outpatient departments of clinics and given potassium iodid and told that there is nothing that can be done for them. The asthma patients are constantly given increasing amounts of epinephrin, possibly morphin, and either of them to excess is not particularly good. I do not pretend that all these cases are going to be cured or ameliorated, but at least we have an agent that deserves more wide application, and one by which certainly a fair proportion of those hopeless cases can be helped.

Federal Government Public Health Activities.—The jurisdiction of the federal government in public health matters extends over foreign intercourse, interstate intercourse, federal territory and administrative affairs, including protection of the Indian tribes. As an example of these fields of activity and the methods of covering them, the District of Columbia may be cited as a strictly federal territory wherein local health matters are especially legislated for by Congress. It has likewise enacted laws to safeguard the life and health of the army and navy—highly important agencies in the administrative affairs of the government. Laws have likewise been enacted and agencies created to protect the Indians, the special wards of our government. In matters of health relating to international and interstate intercourse, the United States Public Health Service is the agency depended on. It operates through its own department—the treasury—or in cooperation with other departments having to do with factors other than health affecting international or interstate commerce.—Kerr, J. W.: *Pub. Health Rep.* **40:**1677 (Aug. 14) 1925.

PHYSICAL THERAPY *

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CHICAGO

No doubt the first agents of treatment used by man were those which could be had through simple adaptations of things natural. The application of heat and cold, rubbing and massage, and the use of water and of sunlight are as old as man himself. In the aphorisms of Hippocrates one reads of the uses of such methods; even at that time sound observers seem to have realized that these agents may act for good or for evil.

"Heat is suppurative," says one aphorism, "but not in all kinds of sores; but when it is, it furnishes the greatest test of their being free from danger. It softens the skin, makes it thin, removes pain, soothes rigor, convulsions and tetanus." But again, "Heat produces the following bad effects on those who use it frequently: enervation of the fleshy parts, impotence of the nerves, torpor of the understanding, hemorrhages, deliquia, and along with these, death." And in commenting on the latter aphorism, Galen and, still later, Celsus, said: "By 'heat' is meant 'hot water' or a 'hot fomentation.'"

Massage, too, was practiced in the earliest times: Anthropologists and ethnologists have described the practice as it exists among savage peoples today, and accounts are found in primitive medical texts. It is repeatedly referred to in the folklore of all nations, particularly in the tales of the Arabian Nights. Such massage included not only simple rubbing, but also pinching and kneading, later classified by French and Swedish investigators with technical terms.

The ancient Egyptians, the Greeks and the Romans were firm believers in the health-giving powers of the sun's rays. Indeed, Herodotus asserted that light must be regarded by the physician who knows his business as a means of repelling illness and as a subsequent aid to recovery. There were sun rooms in the homes of all the well-to-do Romans, not glassed-in sun-parlors facing north, as in our apartments today, but large central spaces, open to the sky and to the sun itself.

Humphris tells us that the first use of electricity in healing took place in the time of Tiberius, some twenty years after the death of Christ, when a physician named Scribonius Largus made use of the Raja torpedo-fish for rheumatism and for headaches. The electric ray-fish and the electric eel of Brazil are said to be able to convey a considerable shock. Scribonius Largus was, however, known chiefly for the scope of his writings, as his name no doubt indicates. His recommendation was based, apparently, wholly on empiricism. Much the same sort of reasoning assigned unusual virtues to mixtures of drugs of foul smell or of nauseous taste. The results commonly are the proof of the power of suggestion.

Of the birth of the roentgen ray and of the finer electric apparatus of our modern times, accurate descriptions are easily available. From the primitive observations of the past have arisen these remarkably complicated devices that have made necessary increased knowledge by the physician of physics and of chemistry, of physiology and of biology, and that call for a finer discrimination in their choice and in their application to disease than it has been necessary to accord to many of the drugs used in medicine.

SCIENCE VERSUS EMPIRICISM

The proper evaluation of evidence regarding the use of new methods in the treatment of disease is difficult. The patient is anxious to be well, the physician wants to see him cured or at least benefited as promptly as possible, and his friends and relatives constantly endeavor to encourage him, regardless of their actual belief as to the state of his illness. The result of this continuous positive suggestion is to lend to any method of treatment that may be employed a credence that is perhaps not its actual due. Few physicians—and, indeed, few scientists—can resist the hyperenthusiasm that is likely to follow a first successful result. The paths of the history of therapy are bestrewn with the wrecks of new cures that sailed forth as the last word in therapeutic achievement. Mental, manipulative, natural, mystical, spiritual and other cures have been brought forth by apostles of healing and vaunted as the secret for the solution of all the problems of healing that have confronted the physician since the earliest times. But when the apostle died, or when the primal faith that animated his followers disappeared, the cure went the way of the apostle.

Now physical therapy has been more subject to misunderstanding of its efficacy in varied conditions than has any other form used by the scientific physician. The potency of the placebo depends only on the mental suggestion and on the personality of the man who administers it. His contact with the patient is not direct. The contact of the chiropractor, the osteopath and the religious healer consists usually of the direct laying on of hands. Few physicians of experience fail to realize the importance of such immediate relationship to the patient. If more physicians took the trouble to make thorough examinations of their patients, never failing to examine the chest after the clothing had been completely removed from the upper part of the body and using auscultation, percussion and palpation, which are fundamental to physical diagnosis, there would be fewer failures and many more persons satisfied with the care of their physicians.

Without doubt, powerful suggestion is conveyed by the use of any intricate or striking mechanical method. The use of electricity, including the direct application of the current, the galvanic apparatus, pocket batteries and all the assorted forms of waves supplied through more intricate mechanisms, as well as the use of electricity to produce heat and light, is a striking therapeutic procedure. The late—but not too late—Albert Abrams well knew the value of intricate apparatus for impressing the patient and, even more, for impressing the uncritical physician. His first venture, spondylotherapy, carried with it a physically intensified suggestion; and those later Goldbergian evolvements, the oscilloclast and the biodynamometer, were impressive in their complexity even to some competent physicians.

Regardless of the fact that the underlying basis for many physical methods never has been thoroughly established and, indeed, is not even yet perfectly understood, the official organ of the American Electrotherapeutic Association only recently said: "The various irregular cults have also worked out in some instances methods that have sometimes succeeded where the rank and file of the medical profession have failed." The editorial referred to cites particularly the treatment of sacro-iliac strain, recommending, first, adjustment and, secondly, the application of electricity. On what basis does the editorial presume to say that displaced vertebrae once adjusted remain adjusted, unless held in

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* Read before the American Electrotherapeutic Association, Drake Hotel, Chicago, Sept. 16, 1925.

place over long periods of time by methods of fixation? Who has proved that ligaments that are relaxed will resume their functions when the supposed luxations are properly replaced? Who has made the scientific studies, using the roentgen ray and all the other methods known to modern science, by which even an iota of truth can be attached to the claims of chiropractic and, indeed, to most of those of osteopathy? Granting that there is a modicum of truth in the claims of the latter cult, what scientific organization will be willing to admit that half-educated and incompetent men with no thorough understanding of the human body and its mechanisms should be privileged to apply any single form of therapy or diagnosis?

THE DANGERS OF SYSTEMS AND SPECIALTIES

If medicine is to be partitioned off into a series of specialties and cults practiced by men who have learned only one organ of the body or only one system of diagnosing and of treating disease, medicine as a science is bound to fail. No part of the human body can be detached and treated as separate from the organism as a whole. This danger threatens all the forms of physical therapy. It was no doubt enthusiasm for a single method that caused an editorial writer in the official organ of electrotherapy to say that "physical therapy will ultimately be recognized as of greater value than all other therapeutic methods." This concentration on an "all or nothing" policy in the treatment of disease must inevitably lead to preposterous and exaggerated claims, and ultimately to the detriment of scientific practice. Physicians have watched the inroads made on the practice of medicine as a single science. They have noted the attempts of optometrists to parcel off the eye as their particular field; of cosmeticians to assume the right to treat disorders of the skin and to request legislatures to grant them power to remove moles, warts, tumors and other excrescences; of chiropodists to assign to themselves the complete care of the feet; of chiropractors and osteopaths to make the field of manual manipulation their exclusive purview; and of some of the specialists within the ranks of medicine itself to assign all important functions to the teeth, to the lungs or to other organs of the body. The time has come to call a halt on geographic warfare within the human body, and to look on it as a "united states" that will be at least as firmly consolidated as the forty-eight individual constituents of our government.

If electrotherapy could point to a past that was free from the faults that have marred the progress of drug therapy since the earliest times, it would need no caution as to the future. But what has become of the hundreds of galvanic apparatus that struck amazement to the heart of trembling children led into physicians' offices some twenty-five years ago? Where are the little electric batteries that formerly occupied the showcases in the drugstores? Indeed, what has become of the claims for high voltage roentgen ray in the removal of deep seated malignancy? What a brief period it required for these claims, vaunted as the last word in the control of cancer, to resolve themselves into a method used only in apparently hopeless cases! The judgment may be premature, but it is based on scientific studies made in well recognized institutions for the study of human diseases.

PHYSICAL THERAPY PROMOTION

There was a time when the medical scientist, having completed his education in the field to which he wished to devote himself, opened his office, began teaching in a medical school with which he had affiliated himself, undertook the care of patients in legitimate hospitals, and left it to the recognition of the public to advance him to the limit of his merits. Today, modern high-powered business methods applied to the practice of medicine have pointed the way to the cults and to the hyperenthusiastic practitioner for promotion of his particular plans. All the forces of publicity are directed toward urging on the public the peculiar advantages that are claimed to accrue to single methods. The high priest of the peculiar system does not hesitate to instruct his followers in promotion of the system by all the arts and crafts—mostly the crafts—of salesmanship. There are physical therapists who believe that "high frequency" means the treatment of eighty patients a day. Again, organizations are established, not for study and investigation or for the promotion of knowledge in relation to the growth of any department of medical science, but primarily for the securing of public acclaim through the organization, rather than through the individual. The multiplicity of medical organizations is evidence of the fact that in some instances they are not established with investigation and study as their main objects. Consider in this connection the society called the Association for Medico-Physical Research. In its meeting, one program is devoted entirely to the claims of the now discredited Abrams method; another, to the exploitation of methods for the treatment of cancer, not one of which is established on any sort of a sound foundation; and still others to the promotion of systems of practice that should meet with nothing but the scorn of all who consider themselves honest and ethical practitioners of medicine. One finds here names of men known as faddists, who have discarded scientific rationality. One, without regard to the established facts of science, insists that a rice diet will prevent and cure cancer. Another promotes the treatment of cancer with a serum, regardless of the fact that carefully made investigations have revealed the failure of his method. There is G. E. Harter of the Defensive Diet League of America, who has collected a lot of miscellaneous aphorisms and peculiar concepts concerning food into a system and who has inveigled dentists of this country to his support with the idea that it is the duty of the dentists to establish the food habits of the nation. Among this miscellaneous crew of peculiar faddists appear the names of some physicians whose places on the program apparently represent an attempt to camouflage, with a sort of medical aristocracy, the fallacies that occupy the major portion of the program.

BASIS OF PHYSICAL THERAPY

The results of physical therapy seem to depend on many factors. Without doubt, rays of light have many and varying effects on the human body. Attempts have been made to separate them into effects of the light itself on the tissues and into chemical effects. Electricity has the power of acting through the heat that may be produced and, perhaps, through some effects produced by the current itself not yet determined; indeed, the mechanism is no better determined than is that of immunity in general. Electric stimulation no doubt has the power to act on nerves and on muscles, producing visible motive effects; and with such effects come mechanical changes. Is it not time that intensive study be applied in an analytic manner to determine to just what extent the benefits observed from the various electrotherapeutic measures are due to physical changes in the tissues, to mechanical changes in the tissues, to the power of suggestion, and, perhaps, to other factors of which we know nothing? Until some adequate basis on which the methods may rest is determined, no one can call such methods truly scientific. We have in physical therapy various methods of producing heat in the human body. There is the heat produced by friction; the heat produced by the external application of light, of hot water or of other heat-producing methods; and the heat produced within the body by diathermy, by the direct injection of heating material, or by the use of methods that will draw unusual quantities of blood to a certain point. In the evaluation of any form of physical therapy, who shall say to what extent the thermic factor alone is responsible and how far the other factors that have been mentioned have a part to play?

The numerous devices for effecting the production of heat, external or internal, for the body unquestionably vary in their potency and in their mechanism. How is the individual physician who knows little or nothing of the physical basis of electricity and, in fact, who knows little or nothing of any physics at all, except in the use of the term as it applies to castor oil and cascara, to have any actual knowledge of these so-called modalities? If the situation that confronted the American Medical Association before the establishment of the Council on Pharmacy and Chemistry was confusion, that of physical therapy resembles almost chaos. Drug products were compounds of chemical substances that might easily be separated into their individual ingredients. Scientific pharmacy had already made sufficient progress to warrant the statement that these ingredients would or would not do what was claimed for them. But when one is confronted with a large box beautifully trimmed with nickel plate and glass, the interior of which is a mass of wiring, spools, coils, gages, screws, nuts and whatnot, and is told that, properly applied, this apparatus will cure pneumonia, neuritis, lumbago, eczema, dysmenorrhea, falling of the uterus and falling of the palate, who is to tell one whether or not the machine will actually do all that is claimed for it? When the textbooks in the field of physical therapy tell the physician that the spine of the patient with locomotor ataxia may be restored to its pristine glory by running a few shocks up and down from the cervical region to the coccyx, is he to discard the prognosis that he has made in the past and to tell the friends and relatives of the victim of the wiles of Venus that his lapse from virtue is to have no further evil effects? What is the physician to do when he learns that most of the textbooks in this field are the products of men who are employed by concerns selling apparatus; when he is constantly besieged with lecture courses paid for by those who have something to sell; when his office is inundated with literature telling him that his financial future depends on the purchase of a vast amount of such machinery? Clearly, a house cleaning is badly needed in this particular field.

At the last annual session of the American Medical Association, held in Atlantic City, the House of Delegates, at the request of numerous members of the profession, voted the establishment of a Council on Physical Therapy, consisting of chemists, physicists, physiologists, pathologists and clinicians, who are to evaluate the actual worth of physiotherapeutic apparatus and methods, and to keep the medical public informed by regular statements of the actual truth or fallacy of such claims. At the meeting of the Board of Trustees held in Chicago early this month, a tentative list of membership for such a council was drawn up. It includes men who are leaders in the field of scientific medicine and in the specialties that have been mentioned, and representatives of the greatest universities and institutions for research in physics and physical therapy that exist in this country. Practically all of these men have volunteered to serve without a cent of compensation in order to give the medical profession unbiased and scientific statements concerning the physical therapy field. Their labors, as have been intimated, will be like the attempts of Hercules to clean the Augean stables. And the medical profession may confidently look forward to the time when the path between the vast accumulation of discarded refuse, jumbled wires, rusted hydrotherapeutic apparatus, peculiar tables and benches, worn-out electric bulbs, and other queer therapeutic apparatus, and the path leading by simple and clean methods to honest therapy will be clear. It is significant that the American Electrotherapeutic Association chose of its own accord to ask the American Medical Association for the appointment of such a council; that officers have taken steps to put it clearly on the side of scientific therapeutics, and that in the arrangement of its program they endeavored to secure material representing actual investigation rather than the exploitation of unknown devices or of therapeutic fallacies.

THE DIGESTIVE TRACT AND ENDOCRINE FUNCTION *

BRUCE C. LOCKWOOD, M.D.
DETROIT

The relation existing between various endocrine disorders and gastro-intestinal disturbances is often vaguely referred to in the literature. Unfortunately, much of the discussion deals with the hazy border-land of endocrinology, not frank endocrine disease, and with ill defined gastro-intestinal pathology. Before attributing gastro-intestinal disorders to hypothetic endocrine disturbance or to a certain endocrine constitution, we must determine whether there are typical or fairly uniform gastro-intestinal findings in typical, frank endocrine disease. If there are, we can assume that, at times, altered alimentary function may be due to slighter disorders in these glands.

This report is a clinical investigation based on a study of the gastro-intestinal tract of most of the frank endocrine cases, involving the thyroid, pituitary and suprarenal glands, which have come under my observation during the last few years.

THE THYROID

Hyperthyroidism.—The literature reveals contradictory opinions as to the effect of excessive thyroid secretion on the gastro-intestinal tract and the incidence of gastro-intestinal symptoms in hyperthyroidism.

Sajous [1] states that excessive thyroid secretion causes excessive metabolism in the gastro-intestinal mucous membrane and muscles, with increased secretion and motor activity, manifested by hyperchlorhydria, gastrosuccorrhea, frequent vomiting, diarrhea and serous light colored stools. One is led to believe that these are more or less constant findings. Barker[2] states that in exophthalmic goiter the gastric secretion, as a rule, is diminished, but that there are certain cases in which it is increased, and that vomiting and unmotive diarrhea are not uncommon. King[3] reports increased stomach and intestinal motility, with an achlorhydria in exophthalmic goiter.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Sajous, C. E. D., in Tice: Practice of Medicine, Hagerstown, Md. **13**: 237, 1924.

Wolpe[4] found achylia constant in all cases of pronounced types of exophthalmic goiter, but the hydrochloric acid unchanged in other types of hyperthyroidism.

Boenheim[5] states that after injections of thyroid extract the secretion of the stomach is raised. Leist[6] found that in eight cases of exophthalmic goiter, seven showed achlorhydria, and explains the finding on the basis of a subnormal protein content of the blood serum, rather than of a hormonic action.

Crotti[7] often found the stomach of exophthalmic goiter patients to be in a state of constant spasticity, when observed fluoroscopically.

Hardt[8] found that feeding dogs for two weeks with large doses of thyroid extract did not produce gastro-intestinal symptoms, but that the digestive acidity and secretion was slightly reduced. On the other hand, Rogers and his associates[9] found that on dogs with a Pawlow pouch the injection of extracts of the non-coagulable portion of the thyroid acted as a vigorous stimulant to gastric secretion.

Hammett and Tokuda[10] found that solutions of thyroxin in sodium hydroxid caused no more contraction of intestinal segments than did sodium hydroxid alone. Friedman[11] explains the various findings in hyperthyroidism on the basis of individual vagotonia and sympatheticotonia, while Boothby[12] believes that this grouping, as advanced by Eppenger and Hess, is not in accordance with the best experimental and clinical evidence.

The incidence of diarrhea in hyperthyroidism is variously given as from 11 to 75 per cent. of cases. Many of the data available are inaccurate, owing to the fact that only in recent years, since the more common use of the basal metabolism apparatus, have the early or milder cases been recognized.

Clinical Observation: Our study is based on a total of ninety cases of definite hyperthyroidism, a number of which were studied in association with Dr. Hugo A. Freund. These cases are divided into three groups, according to the types of goiter; namely, the formes frustes, the exophthalmic and the adenomatous types. The gastro-intestinal findings and their incidence are considered from the standpoint of the symptoms and the diagnosis.

Out of a total of ninety cases, with an average metabolic rate of + 35, twenty-four, or 36.6 per cent., showed some gastro-intestinal complaint. Nausea and vomiting, which are usually considered common complaints, were present in only three cases, or 3.3 per cent. of the total. Diarrhea, which is again considered common, was present in only four cases, or 4.4 per cent. of the total. These cases all occurred in the exophthalmic type, and constituted 16 per cent. of the cases in which such a diagnosis was made. Moderate or severe constipation was present in 16.6 per cent. and was about equally divided among the three types of goiter. Visible mucus in the stool occurred in eight cases. Jaundice occurred in one case of exophthalmic goiter, and was followed by immediate improvement in the hyperthyroidism.

Gastric analysis was done only in those cases presenting digestive symptoms. One achlorhydria was found in five formes frustes cases. It was found seven times in ten exophthalmic cases, and twice in nine adenomatous cases.

In Table 1 are tabulated the findings showing the incidence, symptoms and gastro-intestinal diagnosis in these ninety hyperthyroid cases.

Table 1.—*Incidence of Gastro-Intestinal Disease in Ninety Cases of Hyperthyroidism*

	Formes Frustes	Exophthalmic	Adenoma	Total No.	Total %
Number of cases studied	22	25	43	90	....
Average basal metabolic rate	+25	+48	+32	+35	....
Number having digestive symptoms	5	10	9	24	36.6
Symptoms					
Appetite poor	3	5	8	15	16.6
Nausea or vomiting	0	2	1	3	3.3
Gastric distress or pain after meals	1	1	1	3	....
Colonic distress or pain related to bowel movements	2	3	2	7	....
Constipation, moderate or severe	4	5	6	15	16.6
Diarrhea	0	4	0	4	4.4
Mucus in stool	2	4	2	8	8.8
Jaundice	1	0	0	1	....
Free hydrochloric acid absent	1	7	2	10	....
Free hydrochloric acid low	1	1	1	3	....
Free hydrochloric acid normal	3	2	6	11	....
Diagnosis					
Achylia gastrica	1	7	2	10	....
Peptic ulcer	1	0	1	2	....
Gallstones	0	0	1	1	....
Chronic intestinal stasis	4	6	5	15	....
Chronic appendicitis	1	0	1	2	....
Cecal stasis with spastic transverse colon	3	4	3	10	....
Catarrhal colitis	1	3	0	4	....
Mucous colitis	1	1	0	2	....

Comment: Nothing unusual is revealed by our study, except perhaps the low incidence of vomiting and diarrhea, which generally occurs only in the very severe cases of exophthalmic goiter. Achlorhydria occurred in ten of the twenty-four cases in which gastric analysis was done (41.6 per cent.), and was present more often in the severe cases. This suggests a tendency toward a diminution rather than an increase of gastric secretion in hyperthyroidism. Constipation, especially cecal stasis and irregular spastic haustration of the transverse colon, was rather common in the milder cases of the hyperplastic type. The incidence of other gastro-intestinal findings was perhaps not greater than among an equal number of persons not showing hyperthyroidism.

Hypothyroidism.—The literature is rather scanty concerning digestive tract study on cases of myxedema. This is probably due to the fact that myxedema patients seldom have abdominal complaints, except constipation. Sajous[1] states that in cretinism and myxedema the stomach does not appear to be the seat of disorder more frequently than in the cases of normal subjects. Sturgis[13] reports the gastric analysis in five cases of myxedema, of which three showed achylia, one a low acid and one normal acid. Katz[14] reports several cases

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2. Barker, L. F.: Tr. Am. Gastro-Enterol. A., May 7, 1918.
3. King, J. H.: M. Clin. N. Am. **2:** 1655 (May) 1919.
4. Wolpe: Hospitalstidende **62:** 1914.
5. Boenheim, F.: Deutsch. med. Wchnschr. **47:** 1256 (Oct. 20) 1921.
6. Leist, M.: Wien. Arch. f. inn. Med. **2:** 491 (June 30) 1921; abstr., J. A. M. A. **77:** 742 (Aug. 27) 1921.
7. Crotti, André: Thyroid and Thymus, Philadelphia, Lea & Febiger, 1918.
8. Hardt, L. L. J.: Am. J. Physiol. **40:** 314 (April) 1916.
9. Rogers, J.; Rahe, J. M., and Abrahamson: Am. J. Physiol. **48:** 79 (Feb.) 1919.
10. Hammett, F. S., and Tokuda, K.: Am. J. Physiol. **56:** 380 (July) 1921.
11. Friedman, G. A.: Peptic Ulcer, J. A. M. A. **71:** 1543 (Nov. 9) 1918.
12. Boothby: Oxford Medicine **3:** 915.
13. Sturgis, C. C.: M. Clin. N. Am. **5:** 1251 (March) 1922.
14. Katz, J.: M. Rec. **97:** 916 (May 29) 1920.

of hyperacidity in myxedema cured by thyroid extract, also some ulcer cases helped by thyroid administration.

Experimentally, Friedman[11] and Carlson and Jacobson[15] found gastroduodenal ulceration in about 75 per cent. of thyroidectomized dogs.

Clinical Observation: Ten cases of hypothyroidism have been studied. All showed a low basal metabolic rate, with varying degrees of myxedema, typical fat deposit distribution, and improvement under thyroid therapy.

The outstanding feature of the gastro-intestinal findings was the incidence of achlorhydria, which was present in 60 per cent. of these ten cases. Seven patients had constipation, and showed varying degrees of intestinal stasis with the roentgen ray. In one case the constipation was interrupted by an occasional outburst of diarrhea. Duodenal ulcer and chronic appendicitis were each diagnosed once.

Table 2 gives a summary of the findings in these ten cases of hypothyroidism.

THE PITUITARY

Beyer and Peter, in 1900, found that injections of pituitary extract at first gave a diminution, then shortly a marked increase, of rhythm and tone of the intestines. Bell, in 1909, called attention to the power possessed by pituitary gland extract to restore peristalsis to the paralytically distended bowel. Galán[16] found that hypophysial extract has an exciting action on the tonus and contraction of the stomach, both isolated and in situ. However, Ginsberg and Tumpowsky[17] found that 1 c.c. of pituitary extract caused an immediate inhibition of hunger contractions, lasting from one to two hours. Pancoast and Hopkins[15] observed the effect of pituitary extract on the gastro-intestinal tract in eleven patients. Pituitary extract was given intravenously, and a series of roentgenograms was taken during digestion. The results were somewhat variable, but as a rule there was a primary decrease, followed by an increase of the motility of the stomach, while the motility of the small and large intestine was generally unaffected.

Table 2.—*Gastro-Intestinal Tract Findings in Ten Cases of Hypothyroidism*

Patient	Basal Metabolic Rate	Gastro-Intestinal Symptoms	Gastric Acidity	Roentgen-Ray Findings
1	—13	Ulcer syndrome; constipation	F. 25 T. 35	Duodenal ulcer
2	—15	Constipation	F. 0 T. 37	Marked rectal and general colon stasis
3	—18	Moderate constipation; enteroptosis	F. 0 T. 18	Ptosis, cecum and transverse colon; cecal and rectal stasis
4	—18	None	F. 20 T. 40	Not done
5	—20	None	F. 0 T. 20	Not done
6	—28	Severe constipation; pain, right first quadrant	F. 0 T. 10	Cecal stasis; chronic appendicitis
7	—15	None	F. 35 T. 50	Not done
8	—18	Pain in lower abdomen; constipation; pelvic inflammatory disease	F. 15 T. 25	Cecal stasis; rectal stasis
9	—35	Constipation alternating with diarrhea; mucus in stool at intervals	F. 0 T. 12	Negative
10	—15	Moderate constipation	F. 0 T. 25	General colonic stasis

Englebach and Tierney[18] describe a general and an intestinal reaction following sufficiently large doses of pituitary extract. In treating cases of hypopituitarism the dose of pituitary extract is gradually increased until an intestinal reaction is produced. This consists of intestinal cramps coming from one to two minutes after the injection and followed shortly by a bowel movement.

Table 3.—*Findings in Ten Cases Presenting Evidence of Pituitary Gland Disease*

Case	Pituitary Diagnosis	Gastro-Intestinal Symptoms	Gastric Acidity	Roentgen-Ray Findings
1	Marked bilobar, insufficiency due to cystic tumor; necropsy	Moderate constipation	F. Neg. T. 10	Sella enlarged to size of walnut; gastro-intestinal examination not done
2	Moderate bilobar, insufficiency, aneoplastic	Constipation; gas distention and distress, relieved by an enema	F. Neg. T. 30	Sella small, gastro-intestinal examination negative, except spastic transverse colon
3	Moderate bilobar, insufficiency, aneoplastic	Nausea and occasional vomiting; constipation; colon bloating and distress	F. 47 T. 75	Sella small, spastic descending colon
4	Marked bilobar, insufficiency, aneoplastic	Tendency to mushy stools with occasional cramps in lower abdomen	F. Neg. T. 12	Sella very small, size of pea; spastic descending colon, ptosis transverse colon
5	Moderate bilobar, insufficiency, aneoplastic	None	F. 20 T. 30	Sella very small, gastro-intestinal examination negative
6	Moderate bilobar, insufficiency, aneoplastic	None	F. 23 T. 53	Sella small, gastro-intestinal examination not done
7	Diabetes insipidus	None	F. 15 T. 22	Sella normal, gastro-intestinal examination not done
8	Diabetes insipidus	None	F. 20 T. 50	Not done
9	Acromegaly	None	F. 30 T. 45	Not done
10	Acromegaly	None	F. 25 T. 45	Not done

Regarding the effect of pituitary extract on gastric secretion, Hess and Gundlack found no marked effect. Boenheim[5] observed an increased secretion, while Pal[19] and also Rogers and his associates[9] found a decrease.

The literature reveals little regarding the gastro-intestinal tract in pituitary disease. Englebach and Tierney report three cases of postadolescent bilobar pituitary insufficiency in which the presenting and chief complaint was severe lower abdominal pain, for which no local cause could be found. Blumgarten[20] also refers to cases presenting pituitary characteristics, especially the Frölich or Lorrain-Levy types, in which there are attacks of colicky abdominal pains, nausea and vomiting. He states that these attacks are always preceded by a frontal headache, often associated with blurred vision or dizziness, and often occur with menstruation.

Clinical Observation: Our observations cover six cases of postadolescent bilobar pituitary insufficiency, two cases of diabetes insipidus and two cases of acromegaly.

There were no consistent findings observed in the gastro-intestinal tract that could be attributed to the pituitary hormone. Achlorhydria was found in three of six hypopituitary cases, being present in the three showing the most marked hormonic signs. There was a tendency toward spastic manifestations of the colon, evidenced by distress and either constipation or mushy stools.. In two cases each of diabetes insipidus and acromegaly, no gastro-intestinal symptoms were present. The gastro-intestinal findings in these cases of pituitary disease are given in Table 3.

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[15] Quoted by Barker (Footnote 2).

[16] Galán, J. C.: Rev. de la Asoc. Méd. Argentina 34: 20, 1921; abstr., J. A. M. A. 77: 306 (July 23) 1921.

[17] Ginsburg, Harry; and Tumpowsky, Isidor: Control of Hunger by Drugs, Arch. Int. Med. 22: 553 (Nov.) 1918.

[18] Englebach and Tierney, in Tice: Practice of Medicine 8: 497, 1924.

[19] Pal: Deutsch. med. Wchnschr. 42: 1030, 1916.

[20] Blumgarten A. S.: M. Clin. N. Am. 6: 687 (Nov.) 1922.

THE SUPRARENALS

Sibelli, in 1909, Finzi, in 1913, Mann, in 1915, and Friedman, in 1916, all found that in 95 per cent. of animals, hemorrhagic gastroduodenal ulceration followed the total removal of both suprarenals. Friedman also produced duodenal lesions in eleven of twelve dogs by administering epinephrin for two weeks. He explains the origin of ulcer on localized muscle and vascular spasm and relaxation, dependent on autonomic control by the thyroid and suprarenal. Mann, in a small series of cases of Addison's disease, witnessed at necropsy only one case of chronic ulcer.

Rogers and his associates found that injections of epinephrin and suprarenal nucleoprotein inhibit gastric secretion. Ginsberg and Tumpowski found that 1 c.c. of 1 : 10,000 epinephrin caused prompt and marked inhibition of hunger contractions for from one to two hours.

Loeper describes a number of cases of what he calls "suprarenal dyspepsia," a "fruste" suprarenal insufficiency, characterized by digestive atony and hypochlorhydria, cured by daily injections of epinephrin. On the other hand, Kaplan and Greef present three cases of what they term adrenopathic hyperchlorhydria, and they obtained symptomatic improvement and lowered gastric acidity by giving dried suprarenal by mouth.

It is generally stated that anorexia, nausea and vomiting, intestinal cramps and either constipation or diarrhea are common in Addison's disease; also that gastric acidity tends to become low or absent.

Clinical Observation: We have observed six cases of Addison's disease. All showed some gastro-intestinal manifestation, but no syndrome peculiar to the disease could be determined. Achlorhydria was present in half the cases and in those of longest duration. Ulcer of the stomach was suspected in one case on account of the history of a hemorrhage, but no lesion could be demonstrated by roentgen ray. Nausea and vomiting were present only once, and then they were associated with dizzy spells and were probably of central origin. Severe constipation was found in half the cases, and diarrhea in one third of the six cases. Anorexia was present to some degree in all cases. In Table 4 is a summary of our findings.

Table 4.—*Findings in Six Cases of Addison's Disease*

Patient	Blood Pressure Systolic	 Diastolic	General Symptoms	Gastro-Intestinal Symptoms	Gastric Acidity	Roentgen-Ray Findings
1	100	65	Duration, 6 months; weakness, loss of weight, pigmentation of skin, headache and dizzy spells	Constipation for 10 years; spells of nausea and vomiting, with dizziness	F. 24 T. 65	Not done
2	94	66	Duration, 1 year; weakness; loss of weight, nervousness; pigmentation	Diarrhea, 4 months; intestinal stasis; colonic distress	F. 58 T. 82	Three cycle peristalsis and spastic pyloris; pericecal disease
3	85	60	Duration, 3 years; weakness, pigmentation, tuberculosis of lungs moderately advanced	Constipation; hard scybalous stools; pain in epigastrum relieved by bowel movements	F. 0 T. 21	Cecal stasis; spastic irregularity; haustration transverse and descending colon
4	86	65	Duration, 3 years; weakness, pigmentation, cold extremities, dyspnea	Anorexia, constipation	F. 0 T. 12	Not done
5	105	75	Duration, 1 year; weakness, pigmentation, dizzy spells	Severe gastric hemorrhage 9 months before; no symptoms	F. 18 T. 34	Negative
6	95	70	Duration, 4 years; marked pigmentation, loss of weight, dizzy spells, weakness	Diarrhea spells for 1 year; colonic distress and gas; mucus in stools; no pus	F. 0 T. 25	Spastic descending colon

Regarding the lesser or "fruste" forms of suprarenal insufficiency, I have not recognized any cases in which gastro-intestinal manifestations could be attributed to such a cause with any degree of certainty.

COMMENT

The gastro-intestinal tract may be considered as a muscular tube endowed with a normal muscular tone, rhythmicity and irritability. It is essentially an automatic organ like the heart. Its stimuli to movement and secretion arise within itself, but these movements and secretions are also regulated by the action of the extrinsic nerve fibers, so as to adopt them to varying conditions.

The innervation of the digestive tract consists of a system of nerves, ganglions and end-organs, about which very little is definitely known. It is a complicated automatic system, sensitively affected by emotions, reflexes, general states of the body, such as toxemias, and infections, as well as by the daily changes of body functions that take place in health. This system is composed of the sympathetic and the vagus ramifications, together known as the autonomic system. The vagus and the sympathetic are assumed to have opposite effects on the gastro-intestinal tract, and to balance normally each other.

The condition of imbalance on the part of these two portions of the autonomic system leads to gastro-intestinal dysfunction. In recent years considerable interest has been manifested in explaining gastro-intestinal pathology and pathologic physiology as being due to autonomic imbalance, which in turn is due to various states of endocrine gland hypersecretion and hyposecretion. That such an explanation may be and often is the correct one is not questioned, yet it seems reasonable to expect more constant gastro-intestinal disturbances in marked and manifest endocrine disorders than is the case.

It must not be forgotten that gastro-intestinal function is influenced by other factors as well as endocrine changes. Indeed, Schnabel[21] found a very small percentage of 350 consecutive gastro-intestinal cases showing endocrine disturbances. Further, it is true that a person of a certain endocrine type, or even having an endocrine disorder, may have gastro-intestinal and other disturbances, dependent on etiologic factors that are not endocrine, and such should be considered in the diagnosis and treatment.

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[21] Schnabel, T. G.: Pennsylvania M. J. **24**: 229 (Jan.) 1921.

The incidence of gastro-intestinal disturbance in our ases, as previously cited, was less than often considred, and in general occurred in the endocrine cases howing the most marked general bodily changes.

CONCLUSIONS

1. The gastro-intestinal tract shares with the rest of he organs of the body in the secondary effects resulting rom disturbances in the functions of the endocrine glands, but not to the extent that is often considered. The exact mechanism is not definitely known, but it is probably through both the medium of the autonomic nervous system and changes in the general bodily nutrition.
2. Slight endocrine disorders seldom produce gastrontestinal disturbances.
3. In general, the stomach acidity tends to be lowered by hyposecretion of the thyroid, pituitary and uprarenals.
4. Hyperthyroidism also tends to reduce gastric acidity, achlorhydria being a frequent finding in exophthalmic goiter cases presenting gastro-intestinal symptoms.
5. Peptic ulcer is not common in manifest endocrine disease, having been noted only four times in 126 cases.
6. In endocrine cases in which there is intestinal disorder, the most common lesion is spastic rather than atonic.
7. In gastro-intestinal cases, all other etiologic factors should be excluded before incriminating the endocrine glands.

Charlevoix Building.

ABSTRACT OF DISCUSSION

Dr. William Engelbach, St. Louis: The incidence of gastro-intestinal symptoms in endocrines is difficult to determine. It depends on the physician interpreting these cases. The etiology of many of these endocrines is in dispute; various schools have made different groupings. The stage of the disorder and length of time a patient is observed would give a different percentage. A gastro-enterologist might for a few days or months find no endocrine symptoms, yet later symptoms may occur.

I would take issue with Dr. Lockwood regarding his statement that hyperacidity is a constant finding in myxedema. The gastro-intestinal effects in these cases are undoubtedly due to the disturbance of the autonomic nervous system, which is so definitely affected by the internal secretions. For this reason, there is probability that the motility of the gastro-intestinal tract is affected more than its secretions, although these secretions must be decidedly modified at various stages of incretory imbalance. It has been our experience that hyperthyroid individuals most commonly present gastro-intestinal symptoms. Next, we have found that the hypogonadisms, in other words, the castrates, persons with status lymphaticus, and eunuchoids, are most frequently troubled by gastro-intestinal symptoms. The bilobar pituitary disorders, such as Froelich's disease in the postadolescent age, also frequently have very marked gastro-intestinal disturbances. We have not found gastro-intestinal symptoms so frequently present in acromegaly and gigantism, except in those cases due to pituitary neoplasm in which these symptoms are due to intracranial pressure. Our studies made on more than 200 cases, including early and late castrates, eunuchoids, and patients with other primary and secondary gonadal insufficiencies, have revealed that disorder of the generative system has been a most prevalent cause for symptoms referable to the gastro-intestinal system.

In 1918, I reported a case which had been under our observation for five years for persistent vomiting. This woman had had her appendix removed at the onset of the disease, and later an exploratory laparotomy was done without finding the cause for her prolonged vomiting which had produced a very severe emaciation. After the exploratory operation, at which time no intra-abdominal condition was found to account for the nausea and vomiting, she was placed on extract of corpus luteum, which had been placed on the market a short time previously. Following this treatment, she was relieved of all her symptoms except the complete amenorrhea, which had been present for one year previous to her last operation. Since this time, she has been under observation more or less constantly and various other preparations have been given her for recurrences of the anorexia, nausea, vomiting and loss of weight, which usually occur in the order named. No medication other than ovarian preparation given hypodermically has relieved her symptoms.

Dr. A. J. Carlson, Chicago: In the work on dogs referred to by Dr. Park, we took the gastric response to standard meal over a long period to get the average, and then we start the thyroid feeding. We have repeated it over long periods on a number of dogs. It is to be remembered, however, that the dog seems to be more resistant to the effect of thyroid than the human being. Thyroid extract in the dog decreases the gastric secretion, without causing any clear symptom of so-called hyperthyroidism in man, except possibly a slight rise of basal metabolism. I question the actual causal relationship between these so-called hyperthyroids and the cases of disturbed gastric secretion that are reported. Dr. Lockwood spoke of diabetes insipidus and of pituitary injection as throwing light on possible gastro-intestinal disturbances in endocrine disorders. I offer a plea and a protest to the effect that while diabetes insipidus is controlled by the administration of pituitary extract, the evidence is that the cause of the malady is injury to the base of the brain. We have no reliable evidence that pituitary extract is secreted into the blood in any condition.

Dr. Bruce C. Lockwood, Detroit: I did not have time in this paper to include the gonads or disturbances occurring at the menopause. I am aware, as Dr. Carlson has spoken, that diabetes insipidus is now considered as due to a brain injury rather than to an endocrine disturbance; but since it had been so long considered an endocrine disorder I included it in this series.

THE PREVALENCE OF TYPHOID CARRIERS IN A GENERAL POPULATION *

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AND
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The examination of the general population for typhoid carriers in various localities in the past has disclosed an incidence, where the disease is not unduly prevalent, of from 0.3 to 0.8 per cent.[1] These results are based largely on a single fecal examination. Obviously, the urinary carrier and many intermittent intestinal carriers are missed. The difficulties attendant on the successful demonstration of a typhoid carrier are well known. Not only must fairly large numbers of the bacilli be present in the specimen, but also their numbers diminish very rapidly and any delay in the study of the specimen decreases the chance of a positive result. Repeated examinations of the specimen are therefore useless, and success depends on an immediate single plating of the stool. It is evident, then, that if the rapid diminution of the typhoid organism in the feces could be largely prevented, the laboratory examination would become much more valuable and repeated platings of the specimen could be made with increased chances of success.

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* From the Laboratories of the Alabama State Board of Health, Montgomery, Ala.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Gay, F. P.: Typhoid Fever, New York, p. 124, 1918.

The method used in the survey described in this paper prevents in considerable degree the rapid death of the typhoid bacillus in the feces; promotes, on the other hand, its multiplication and prevents, in most specimens, the rapid overgrowth of *B. coli*. This method has been described elsewhere,[2] but certain modifications have been made in the original method, and they are given here

The basic medium consists of bile, 1 liter; beef extract, 3 gm and peptone, 10 gm. The reaction is adjusted to p_H 7.2. If the medium is diluted 1 : 20, the color of the bile does not interfere with the indicator, and phenolsulphonephthalein may be used. The medium is then sterilized at 15 pounds for fifteen minutes. Brilliant green is then added in a concentration suitable to inhibit members of the colon group of organisms and not to prevent the growth of the typhoid bacillus. This should be determined for each lot of the medium by the addition of a small amount (not more than 1 gm.) of fresh feces to 15 c c. quantities of the bile medium containing brilliant green in varying concentrations The feces are seeded with small numbers of typhoid bacilli (from 100 to 1,000). The specimens are left at room temperature, and a loopful is plated from the surface of each on successive days. Our experience indicates that the usual concentration of the dye for the purpose lies around 1 : 1,500, but it is necessary to make this preliminary experiment with each lot of the brilliant green-bile to be sure that it is properly adjusted to prevent overgrowth of the typhoid bacillus with fecal bacteria, and to permit multiplication of *B. typhosus*.

TABLE 1—*General Results of Survey*

Number of persons examined ..	1,076
Number of specimens examined .	4,950
Number of persons positive (typhoid and paratyphoid A and B)	55
Number of specimens positive (typhoid and paratyphoid)	72
Per cent of persons positive (typhoid and paratyphoid A and B).	5.1
Per cent of specimens positive .	1.4
Average number of times each person was examined urine	2.3
Average number of times each person was examined feces .	2.3

The proper concentration of brilliant green having been determined, the dye is added to the bile medium The container used is a 1 ounce, wide mouth bottle containing about 15 c c of brilliant green-bile The following points are essential to the success of this method:

1 Large amounts of feces will decrease the activity of the dye and permit overgrowth of *B coli* Not more than 1 gm of feces in 15 c c quantities of the brilliant green-bile is a satisfactory amount

2 Incubation of the specimen at body temperature apparently encourages rapid overgrowth with fecal organisms, and, since the typhoid bacillus grows well at ordinary room temperatures, the specimens are not placed in the incubator

3 Most specimens of bile are well suited to an abundant growth of *B typhosus* Occasional lots of bile have been encountered, however, in which the typhoid bacillus fails to grow well This has been observed with both dehydrated and fresh bile The addition of beef extract and peptone permits satisfactory growth of the typhoid bacillus, but samples of the medium should be inoculated with *B typhosus*, both before and after the addition of the dye, to determine its ability to support growth

For urine cultures, from 5 to 10 c c of urine is used. Incidentally, the dye does not interfere with the use of the medium for blood cultures

LABORATORY EXAMINATION

On receipt of the specimen, Endo plates were streaked with a loopful from the surface of the bottle This was repeated on the two succeeding days, three platings being made for each specimen. Suspicious colonies were picked to Russell double sugar agar, carbohydrate reactions and agglutination tests being made on cultures from the Russell tubes which gave a characteristic appearance No culture was considered positive that did not agglutinate in high titer with a known monovalent agglutinating serum of high titer (from 1 : 10,000 to 1 : 20,000).

RESULTS

The survey included 1,076 healthy persons employed in the dairy industry of Alabama There were 1,004 men and seventy-two women Both feces and urine were obtained from each person an average number of 2.3 times Table 1 summarizes the results

Thirty-nine healthy typhoid carriers, thirteen paratyphoid A carriers and three paratyphoid B carriers were found, making a total for both typhoid and paratyphoid of fifty-five, or 5.1 per cent. Three hundred persons in a community where, until a few years ago, a very high typhoid rate existed, yielded thirty-one carriers If these are excluded from the general survey, there still remain twenty-four carriers of typhoid and paratyphoid among 776 persons, or a rate of 3.1 per cent.

Table 2 shows the distribution of fecal and urinary carriers. The number of urinary carriers is surprisingly high, almost one half of the total, indicating the importance of examining the urine as well as the feces in a search for carriers. The importance of enrichment of the whole specimen of urine, together with an incubation period to permit multiplication of the organisms present in the original specimen, undoubtedly yields a larger number of positive results than direct plating This preliminary enrichment and incubation is emphasized by Garbat[3] as an important part of the technic of urine examination for typhoid

The typhoid carrier rate that has been found to exist in certain communities in Alabama is much higher than any previously recorded This study, however, presents certain differences from those heretofore made Not only were specimens of urine as well as feces obtained, but repeated examinations were made An analysis of the positive results shows that thirty-four carriers were found on the first examination Subsequent examinations resulted in the detection of twenty-one additional carriers who would have been missed had only a single specimen been obtained Furthermore, it is seen in Table 2 that there were eighteen urinary typhoid and five urinary paratyphoid A carriers If feces only had been examined these would, of course, have been missed, leaving only eleven carriers, who would have

TABLE 2—*Incidence of Fecal and Urinary Carriers*

		Per Cent of Total
Fecal typhoid . .	21	1.95
Urinary typhoid	18	1.65
	8	0.75
	5	0.43
	3	0.27
Urinary paratyphoid B	0	....
	55	

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[2] Hevens, L C, and Dehler, S A J Lab & Clin Med **10**: 238 (Dec) 1924

[3] Garbat, A L Monograph 16, Rockefeller Institute for Experimental Medicine p 58

been detected by a single examination of the feces, or a rate of 1.0 per cent

That typhoid carriers in general do not excrete the bacilli in large numbers at all times is indicated by the well known difficulty of obtaining bacteriologic proof of a carrier Further evidence of this intermittence is offered in Table 3. This table shows the number of examinations, the period covered by the examinations and the specimens that were positive. It further emphasizes the importance of repeated examinations, and illustrates the fact that no definite number of examinations will exclude the possibility of the existence of the carrier condition. In three instances (35, 36 and 37), positive results were not obtained until the sixth examination. Subject 8, a urinary carrier, had three negative examinations before a second positive specimen was obtained

TABLE 3—*Positive Carrier Examination*

Carrier No	Number of Examinations*	Specimens Positive	Time Between First and Last Specimens
1	1	1st	
2	3	1st	4 weeks
3	3	1st	4 weeks
4	1	1st	
5	1	1st	
6	4	1st and 2d	6 months
7	1	1st	
8	5	1st and 5th	4 weeks
9	2	2d	4 weeks
10	1	1st	
11	5	1st	2 months
12	1	1st	
13	2	2d	2 months
14	1	1st	
15	1	1st	
16	2	2d	10 days
17	8	3d	4 months
18	5	2d	1 month
19	2	2d	1 month
20	5	4th	6 weeks
21	2	2d	1 month
22	3	3d	1 month
23	4	3d	2 months
24	3	1st and 3d	1 month
25	4	3d	2 months
26	4	3d	2 months
27	2	1st	10 days
28	1	1st	
29	1	1st	
30	1	1st	
31	1	1st	
32	4	4th	2 months
33	1	1st	
34	1	1st	
35	10	6th	4 months
36	6	6th	4 months
37	8	6th	4 months
38	4	4th	10 days
39	1	1st	
40	1	1st	
41	1	1st	
42	4	1st	1 week
43	2	2d	6 months
44	1	1st	
45	1	1st	
46	12	1st	
47	1	1st	
48	1	1st	
49	1	1st	
50	1	1st	
51	4	2d and 4th	1 week
52	2	2d	1 week
53	1	1st	
54	4	1st, 2d and 4th	10 days
55	3	3d	3 weeks

* Both feces and urine

This high typhoid carrier rate in a general population cannot be given its proper significance until a more complete knowledge of the carrier problem in general has been developed. It is evident that no outbreak can be traced to the majority of these carriers. It must be assumed, for administrative purposes, that every person who harbors bacilli that conform to the cultural and serologic criteria of the typhoid bacillus is a potential disease producer That such a person actually does cause disease is another question. Personal habits may determine to a considerable degree the effectiveness of a carrier in producing typhoid fever. There are included in our series two urinary carriers, the owners and operators of a dairy, to whom no case of typhoid fever can be attributed over a period of at least five years. These two carriers have been particularly cleanly in their habits, and even though engaged daily in handling milk consumed by others, apparently prevented the infection of their product over this considerable period of time. One of these carriers could give no definite history of an attack of typhoid; the other had had typhoid fever fifteen years before.

It must further be assumed that all these organisms are virulent. Had we a test to determine the virulence of typhoid cultures, it might be found that many typhoid carriers are harboring avirulent bacilli, incapable of disease production.

As the result partly of the difficulty of detecting the typhoid bacillus in the discharges, it is assumed that a healthy carrier is a permanent carrier. It is possible that exposure of immune persons to infection may produce a temporary carrier state more frequently than has been actually supposed. Klinger and Lentz[4] adduce some proof of the existence and temporary nature of so-called contact carriers. Klinger found eleven carriers in the neighborhood of cases of typhoid fever who gave no previous or subsequent history of an attack. In nine of these the bacilli were found on only one occasion. Lentz examined persons in association with typhoid patients and discovered twenty-two carriers Semple and Greig[4] report the finding of carriers among hospital orderlies in attendance on patients with typhoid

Regardless of these considerations, it is apparent that many typhoid carriers exist against whom there is no epidemiologic evidence of responsibility for disease production This high carrier rate in a general population may indicate that a larger proportion of cases become carriers than has previously been supposed. A study of patients who have recovered is now being made in Alabama with this point in view.

SUMMARY

The method described for the collection of specimens of feces and urine for typhoid cultures prevents in a large measure the deterioration in value of such specimens with the lapse of time. A typhoid carrier survey of 1,076 healthy dairy employees yielded fifty-five carriers of typhoid and paratyphoid bacilli, a rate of 5.1 per cent.

519 Dexter Avenue.

ABSTRACT OF DISCUSSION

Dr Seneca Egbert, Philadelphia It is agreed that there is a difference between the danger of contagion from the carrier in the city and the carrier in the country In the city where there are all the conveniences of the home and household, such as good plumbing, and where the discharges of the body go into the common sewer and are later well diluted or treated and no longer dangerous to health, the carrier may not be a menace, but in the country the excreta of the carrier often go to a cesspool and then into the drinking water of the household I think that the question of household conveniences is a factor in these cases and frequently determines whether a carrier is a serious menace or not

Dr George M. Kober, Washington, D C: It was my pleasure to make a tabulation in 1895 of 330 epidemics of milk-borne typhoid fever, scarlet fever, diphtheria, septic sore throat, etc I am very glad that Dr Welch has investigated the subject of typhoid carriers in relation to the milk supply.

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[4] Quoted by Ledingham and Arkwright The Carrier Problem in Infectious Diseases, London, p 19, 1912

I have always felt that after convalescence from typhoid fever we should know more about the percentage of typhoid carriers. I feel that it is highly important that more such surveys should be made. I came to the conclusion in 1895 that the safeguarding of the milk supply was one of the most important sanitary problems. I feel that perhaps the most efficient preventive measure that we as sanitarians can offer to the public at large is by advocating sterilization or pasteurization of all cow's milk. Many physicians are opposed to this on the assumption that heat destroys the vitamins and impairs the digestibility of the milk, but even there we have been assured by experiments that rapidly heated milk does not to a degree affect vitamins and it has been shown by Dr. Schroeder of the Department of Agriculture that heated milk does not impair its digestibility. So on the whole I don't know that we can offer any better advice than to bring up the milk rapidly to the boiling point, or what is commonly called scalding it.

Dr. W. H. Seemann, New Orleans: I do not know of anything that the rise and fall of the health officer is more largely governed by than his typhoid rate. Day by day we are getting closer to the question of the individual carrier. We do not know what cesspools, water supplies or food supplies may be infected. In this way we have outbreaks. Work must be done with the man who handles foodstuffs, the starting point of an outbreak, and the method Dr. Welch has outlined for rapidly determining the existence or nonexistence of the carrier state seems to me to be a very valuable one. We have been for many years using various inhibiting agents. The big point he has brought out in hunting for typhoid carriers is rapid planting in whatever culture material one may use. In addition, it has been noted that excretion of typhoid bacilli in carriers is not always a constant process, but at times the bacilli will not be found in urine and in the feces, when on another occasion they may be found.

Dr. A. J. Chesley, Minneapolis: In Minnesota, only two small outbreaks of typhoid have been water-borne since 1914. The division of preventable diseases has systematically followed up epidemiologic indications of carriers since 1913, and to date has discovered 131 carriers responsible for 644 cases, including forty-six fatalities. Mailing outfits with a medium like the one Dr. Welch describes are used for sending specimens of bowel and bladder discharges to the laboratories. The control of typhoid carriers must be carried out without publicity if possible. In cooperation with the state dairy and food department, a program for typhoid carrier supervision was agreed on several years ago. The 131 carriers were discovered through investigation of outbreaks traced to them. Occupation is an important factor in relation to typhoid carriers. Dairy workers, then cooks and food handlers are most dangerous when carriers. What automobile tourist traffic may show remains to be seen; but many people who ordinarily do not handle food prepare it for others while touring. It is often impossible for a dairy farmer or a cook to give up his work and get something that is safe with an income sufficient to support his family. Whenever possible, certain adjustments have been made to permit the sale of cream, separated at the farm, to supervised creameries where it is pasteurized and used for butter making only. Sometimes no adjustment can be made and the carrier suffers serious losses entirely in the interest of public health. The 1925 legislature granted $6,000 a year to be used by the industrial commission at the direction of the state board of health to aid carriers who suffer serious losses. A bill for typhoid carrier relief had been considered at several previous sessions. In 1925 the bill was not passed, but the appropriation was granted. This typhoid carrier appropriation by the legislature I think is a distinct advance in practical typhoid control. Typhoid infection always comes from a patient, a convalescent or a chronic carrier as far as we know. Therefore, when water supplies are properly safeguarded, the epidemiologic search for carrier sources of outbreaks with intensive systematic follow-up of typhoid convalescents should eradicate typhoid fever. And the injustice now done to the carrier and his family may be lessened by state compensation in deserving cases.

Dr. A. T. McCormack, Louisville, Ky.: I congratulate Minnesota for recognizing human beings in the same way as dairy cows. This is a real milestone in progress which really indicates that the human being will be considered of some cash value along with other animals for which we are in the habit of paying in money.

Dr. S. W. Welch, Montgomery, Ala.: We have in the last two years organized a movement for the standardization of the milk control methods in Alabama. Some years ago we standardized the control of our municipal water supplies. We concluded that we could now standardize our milk supply, and if we could do this, we would have our principal sources of typhoid fever under control. The work that we have done has given spectacular results. In 1907, when we began this work, we had 989 deaths from typhoid fever in the state. In 1924 there were just a few more than 300. We have no municipal typhoid fever worth mentioning now. We have made some very interesting discoveries. Outbreaks of typhoid fever in rural districts on investigation have practically every one of them been traced to a carrier. We are now conducting an organized campaign against carriers. We have obtained some very startling results along these lines. While admitting that the carrier is the cause of most of the typhoid fever in rural districts, I am not prepared to admit that they are without danger in the city. Our first knowledge of the carrier was Typhoid Mary. Any one who handles food supplies, whether in the city or country, is a potential distributer of typhoid fever. We are examining our food handlers in every capacity in Alabama with a view of eliminating all who proved to be typhoid carriers. The discoveries have sometimes been disconcerting. A man and his wife, who had been conducting a dairy for five years, were found to be carriers and the dairy closed. There seemed to be nothing else to do, although we did not trace typhoid fever to any one who had been supplied with milk from his dairy.

IMMUNITY IN CANCER*

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For years the fact has been noted that occasionally human carcinoma or sarcoma disappears either spontaneously, after incomplete removal, or in connection with some general processes. Among the latter may be enumerated high and continued fever, or profound alterations in the metabolic processes of the organism, such as cachexia, artificial menopause, or the puerperium. While doubtless many of the older observations are unreliable because of the lack of microscopic tumor diagnosis in the period during which the patients were observed, there are still in the literature some hundreds of examples in which a microscopically verified, morphologically malignant tumor disappeared for a period of years. But during the thirty or forty years that these recessions have been observed to occur, millions of people have been recorded as dying of cancer, so the phenomenon must be extraordinarily infrequent and conclusions as to the underlying causes can scarcely be drawn. According to my experience, tumors resembling sarcomas, but difficult to differentiate microscopically from the granulomas, are the type most likely to regress. The records show that very few typical carcinomas have undergone spontaneous regression for any extended period. A slightly different aspect is seen in very late node or scar recurrences, following chiefly radical mastectomy for carcinoma. These are not very infrequent as late as fifteen years after the operation. A few similar late recurrences have been observed after the removal of malignant growths from other situations. A valuable recent collection of many of the first group can be found in an article by G. L. Rohdenburg.[1]

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* From the Institute of Cancer Research, Columbia University.

* Read before the Section on Pathology and Physiology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

The fact that some of these regressions were coincident with bacterial infections, especially erysipelas, has led to the attempt to cure cancer by the inoculation of virulent erysipelas germs; but a number of deaths having followed this method, it has long since been abandoned. On the other hand, Coley has for years advocated the therapeutic use of a fluid containing the toxins of the erysipelas streptococcus plus those of *Bacillus prodigiosus.* He has used this in a very large number of cases of sarcoma, having found that it was ineffectual on carcinoma. A certain number of regressions have been reported by Coley and others, but they are small in number compared with the many failures. Evidently the procedure is not an effective remedy.

Many attempts have been made, using the analogy of the potency of bacterial vaccines and antitoxins, to induce immunity against human neoplasms by injecting either antiserums produced by treating an animal with the neoplasm, or by direct inoculation either of the crushed tumor or of a tumor killed by roentgen ray. Neither of these methods has proved effective and the last two are dangerous, as examples are known of massive production of tumor tissue in the unfortunate patient, because some of the cells escaped either complete crushing or destruction from the roentgen ray. None of the vast number of serums, either normal or obtained from cancer patients with a quiescent growth or containing the antibodies produced by some hypothetic cancer germ, have proved of the slightest value, nor has it ever been possible to demonstrate in the body either of human beings or of animals any reaction that can be regarded as a response to an immunizing quality of the tumor cells of a primary growth of whatever nature. Even the successful transplantation of a tumor from one animal into another healthy host of the same species, and the continued growth therein, does not result in any demonstrable antibody, though we do occasionally see such antibody production in the course of transfusion in human beings, when the first injection has gone smoothly but the second from the same donor has produced a serious reaction, often accompanied by extensive hemolysis. Evidently, then, the cells of primary tumors are extremely closely related to the tissues of the host and, therefore, are neither more nor less susceptible to the influence of the processes of immunization than the homologous tissues of the body.

If the cause of such spontaneous disappearances cannot be traced to the action of the host on the tumor cells, are there any other facts that may explain the phenomena? The poor vascularity of many malignant growths, and the thrombosis that often occurs in the vessels of a tumor, not infrequently give rise to extensive necrosis, to resorption of the necrotic material and thus to a clinical regression. Such clinical regressions, however, are usually followed in due time by a fresh outburst of the tumor, which then runs its usual course.[2] When, however, scarring occurs about the neoplasm, the return may be delayed for a long period. This is best seen in the very late returns observed after the caustic cure of squamous cell epitheliomas of the face and lip, for recurrence may be very slow. In some instances, years may elapse. The low malignancy of many tumors in the aged is another evidence that with lowered metabolic activity the tumor growth may be slow but is not inhibited. For if there were such inhibition, tumors would not be more frequent in the old than in the young.

The interest in the subject of tumor regression has been greatly stimulated of late by the active research on the general biology of cancer that has been carried on in various laboratories and by an attempt to find out the method of action of radiation on the cell.

For a long time after the introduction of the roentgen ray and radium as therapeutic agents, such effects as were produced on malignant structures were regarded as a direct action of the rays themselves, and the surrounding normal tissues were considered to play, so to speak, a neutral part in the process, though the earliest observers noted that lesions were frequent in the terminal arterioles and much connective tissue sclerosis present. These arterial changes diminish the nutrition of the tissue so affected, and thus cut down to a certain extent the supply of food to the cancer cells contained in such sclerotic tissue. But this, while very important in the primary reduction in the size of tumors, does not destroy all the cells of a growth, and it has been generally accepted as purely a secondary process and has not been regarded as exerting any destructive action against the cancer cells. In recent years, however, especially since the fact has been observed that animal tumors require exceedingly large doses of radiation to kill all the cells, and since a considerable amount of human pathologic material has been examined showing that even with a clinical cure, apparently viable tumor cells remain in the tissues for long periods, the hypothesis has been favored that a large part of the action of radiation is indirect; that the cancer cells are merely damaged, and the destruction completed by some sort of activity on the part of the surrounding tissues. It is impossible to record, within the limits of a paper of this type, a complete summary of the different ideas that have been held by various workers, both laboratory and clinical. Only the most important contributions can be included. But the question is so fundamental to the intelligent application of radiation methods in the treatment of cancer, and the interest in the results of these is so universal, that a survey may be useful.

The question is, then, What is the mode of action of the rays of radiation on the cell? Is it a direct destruction, or is it in part direct action and part a stirring up of the protective agencies of the body such as come into play, for example, in the bacterial infections; or may such results as are observed be wholly due to such protective agencies?

In the first enthusiasm for radiation therapy, the question of anything but direct destruction was not considered. But when those employing these agencies recognized that there were extensive limitations to the curative capacities of irradiation, and when it was shown by myself and verified by others that animal tumors when irradiated inside or outside of the body required very heavy dosage to kill all the cells, those who believed that they could cure cancer added the new hypothesis that the body had some destructive capacity which aided the direct action of the radiation and destroyed such cells as had not been killed by direct action. A very active study of the question immediately began and assumed two forms: the laboratory experimental work on primary and transplanted tumors in animals, and careful clinical and histologic investigation of the results of irradiation on human tumors.

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STUDIES ON ANIMAL TUMORS

One of the first to study the conditions surrounding the spontaneous disappearance of animal tumors was da Fano, who published reports of very careful histologic investigations showing that such regressing tumors were often, though not always, surrounded by a dense infiltration of lymphocytes and plasma cells. He drew the very cautious conclusion that there was some correlation between the presence of these cells and the disappearance of the tumor. This was later taken up by Murphy and his co-workers on a very large scale at the Rockefeller Institute. They published a series of papers containing many ingenious methods of investigation of the problem. They worked, however, chiefly with one tumor, known as Bashford 63. It is not altogether a satisfactory tumor for this work, as it takes irregularly, sometimes 100, sometimes 90, sometimes 80 per cent., and also disappears spontaneously in an unpredictable proportion and often leaves the animal immune. Sometimes the disappearances may amount to 50 per cent. of the inoculated tumors; at other times to less. The use of such a variable tumor—and these variations cannot be removed by the use of a pure bred stock—makes it very difficult to draw definite conclusions unless the effect of these variations is removed by the use of a very large series of animals for each experiment. The conclusions drawn from such experiments cannot be transferred to other transplantable animal tumors, nor can they in any way be considered as warranting conclusions concerning primary human tumors, because the latter practically do not disappear spontaneously. Murphy found that irradiating animals caused a general and local lymphocytosis, and that after such a lymphocytosis was induced a resistance to tumor implantation could be demonstrated. Assuming, for purposes of discussion, that the results of all of Murphy's experiments are correct, in order that the facts so obtained may be generally applicable they must first be verified on other animal tumors. The following work was done in this line at the Institute of Cancer Research of Columbia University.[3] I quote the following conclusions from that paper:

> 1. Assuming that the lymphocytes carry protective substances, mice or rats with lymphatic leukemia or very high leukocyte counts, 20,000 to 30,000, should show some immunity to tumors. This is not the case with a number of animal tumors, including Sarcoma 180, the Flexner-Jobling rat carcinoma, and incidentally was not observed in the case of human lymphocytic leukemia with a carcinoma of the cervix. The growth progressed at its usual rate and the patient died. Neither Sittenfield nor Kelling was able to show that an artificial lymphocytosis had any effect on tumor growth.
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Kok[7] has recently summed up his work with Vorländer. The effect of irradiation over the entire animal is most effective when it is carried out from two to three days after the tumor has been grafted. After the tumor has definitely begun to grow, the animal must receive at least one third of an erythema dose over the entire body to have any effect. This is a larger amount than can be given to a human being. His observations point to the fact, which has long been known, that grafts do not take well in animals that are sick, and after the operation. A few similar late recurrences have been observed after the removal of malignant growths from other situations. A valuable recent collection of many of the first group can be found in an article by G. L. Rohdenburg.[1]

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[3] Wood, F. C.: Tr. A. Am. Phys. **33**: 128, 1918.

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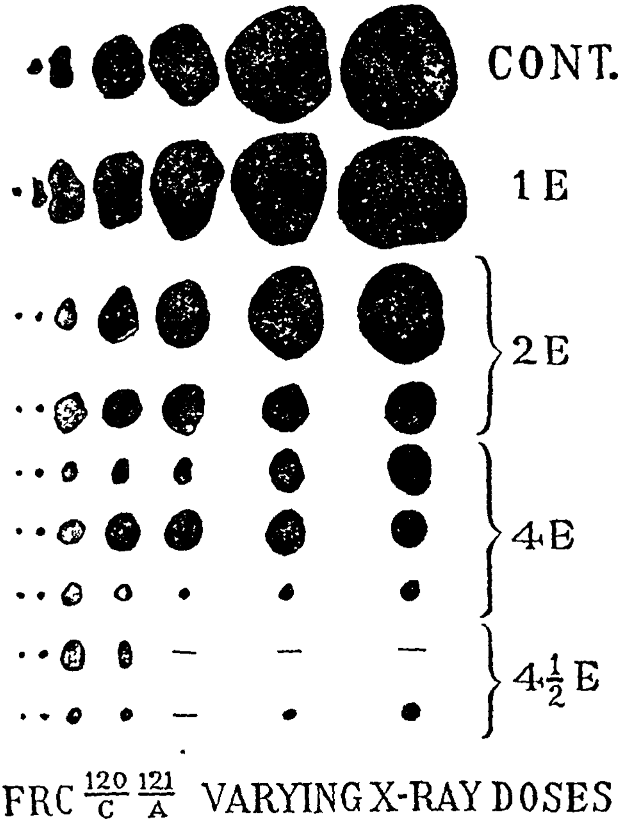
Keysser,[8] influenced by Seitz and Wintz' theory of a "carcinoma dose," irradiated a large number of animals with transplanted tumors and made the remarkable discovery that either the animal tumors have an entirely different biologic susceptibility to roentgen rays than the assumption of Seitz and Wintz concerning human cancer warrants, or that his dosage computations were incorrect, or that the action of the rays on the tumor cells must be an entirely indirect one. As Wintz has recently retracted his "carcinoma dose," saying that he never meant by a "carcinoma dose" that it was a dose that would cure cancer, but was merely a maximum which could be given to a cancer without danger to the patient, it is evident that the human tumors are not so different from the mouse tumors in their susceptibility. The second possibility, that the computations of his dosages were incorrect, may or may not be valid. Recent studies of the erythema dose of the various German clinics have shown that it varies as much as 350 per cent. Keysser rather leans to the explanation that there is a general protective reaction of the body which causes a destruction of the tumor.



Effect of different roentgen ray doses on the Flexner Jobling rat carcinoma: All outlines are scaled tracings of the tumor taken one week apart; roentgen-ray treatment was given after the third charting. Top line, untreated control, second line, tumor given one human skin erythema dose; third and fourth line, tumor given two erythema doses, fifth, sixth and seventh lines, tumor given four erythema doses, eighth and ninth lines, effect of four and a half erythema doses, which is about the lethal dose of the tumor One tumor is killed; the other disappears, but recurs later from a few remaining cells.

In further experiments he irradiated tumors in the animals, removed them immediately, and transplanted them. These transplanted tumors grew. But if the tumors were left in the animal's tissues for ten days and then transplanted, he obtained no takes. From this he drew the conclusion that the direct action is unimportant, and that the secondary action of the tissues, which occurs in the period during which the tumor remains in the body, is the important thing. Unfortunately this experiment is not conclusive, for at the end of ten days the destructive effect of the rays on the tumor cells has reached its maximum. If the tumor particle is then transplanted it is already a highly damaged tissue. The transplanting adds fresh trauma. As is well known, most of the cells in the grafts die and the take occurs from only a few remaining cells. It is probable, therefore, that in Keysser's experiment the explanation of a nontaking of the graft which remained ten days in the animal is that the damaged condition of the cells is responsible for the nontaking, rather than in a hypothetic destructive action of the surrounding tissues. For, if the graft, as my own experiments show, is given a sublethal dose, and instead of being transplanted is left in the animal, it will shrink considerably but ultimately recur.

Keysser gives no details except that he gave about two erythema doses. This is probably equivalent to three American erythema doses—an amount considerably below the lethal dose of mouse tumors. He apparently does not know whether the mouse tumor he used was capable of inducing immunity against itself—an important point.

I have gone over Keysser's work and get different results. Testing the matter with animal tumors, the following experiment seems to me a crucial one, and I fail to see any logical answer to the necessary conclusions that must be drawn from it. The first requisite was a tumor with a known lethal point to the roentgen ray. Radium is unsatisfactory because of the difficulty of measuring the exact dose reaching the tissue, owing to the rapid falling off of the dose with increasing distance according to the inverse square law, and the irregular form of the container, which requires complicated mathematical computations to give the exact amount.[9] But with a 40 to 50 cm. skin-focus distance and highly filtered roentgen rays, the beam is so nearly homogeneous and parallel when applied to a small tumor that the tissue absorption factor is low.

Take, for example, a series of experiments carried out in the Crocker Institute, using the Flexner-Jobling rat carcinoma. This, as I have shown some eight years ago, is killed at about four and a half erythema doses, all scatter being eliminated, and using the term "erythema" as a very light reddening of the human skin. The German erythema dose is from 50 to 100 per cent. higher than this. The rodent's skin will bear three human erythema doses without damage, but four are apt to produce some burning and epilation. If, now, grafts are planted on the outer surface at the thigh of a series of rats, and after the growth has reached a stable stage and the tumors are from 5 to 10 mm. in diameter they are irradiated, the following phenomena, recorded in the accompanying chart, are to be observed: One human skin erythema dose to the tumor alone produces no change. Even if the animal as a whole is irradiated, the tumor also continues to grow. If two erythema doses are applied to the tumor alone, practically no change in growth rate is noted. With four erythema doses the tumors grow more slowly, but still progress, and in no case disappear. In other words, if the tumor requires four and a half erythema doses for its destruction in vitro, it requires four and a half erythema doses to be killed in vivo. As a matter of fact, it ofen requires a little more, because the circulation of the blood through the tumor washes out the destructive products produced by the action of the rays on the cells, and, so to speak, rejuvenates the tissue somewhat. If there is any resistance, protective action or destructive action on the part of the connective or other tissues of the host, any effect on the tumor from the lymphocytes or plasma cells, it would diminish the amount of roentgen ray required to kill the tumor.

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[8] Keysser, F.: München. med Wchnschr. 68: 4 (Jan. 7) 1921.

[9] Wood, F. C., and Prime, Frederick: Ann. Surg. 62: 751, 1915.

Recently we have repeated the work to find whether our animal tumors have changed their lethal dosage. We found that the tumors killed ten years ago with a definite amount of radiation are still killed with the same quantity and exposure in the same time. But in the course of this redetermination we were able to make a large number of experiments of this type. Hundreds of animals with different types of growths have been given one erythema dose to the whole animal, and not a tumor has disappeared; the only ones which have disappeared have been given that full lethal destructive dose required to kill the tumor outside the animal. I cannot see any other way to interpret this experiment but that the body plays no part in the destruction of the tumor by irradiation.

Murphy[10] recently reported a similar roentgen-ray experiment with somewhat different results, but the number of animals was small, the tumor was a primary one whose lethal dose was unknown, and the irradiation was done only ten days after grafting, a period when the tumor is highly susceptible to injury, as its vascular relationships are as yet not thoroughly established. The rays used were the very soft, unfiltered, and the time only 150 seconds. There are many probabilities of error in using such rays at a distance of only 5 to 10 cm. from the tube and for so short a time, and there is no evidence in Murphy's paper that care was taken to eliminate such sources of fluctuation. The most important of these is that the absorption of such soft rays is so great that the proximal surface of a tumor may receive a lethal dose, the cells of the distal portion being practically unharmed. Grafts taken from top or bottom of the tumor may hence give inconstant results. His conclusions, therefore, cannot be accepted as generally valid unless obtained under more accurately controlled conditions, and we have never been able to duplicate them in this laboratory.

Nor do I think that the conclusions of Nakahara[11] in this connection are valid. He irradiated an animal and then implanted tumors in the irradiated areas, and noticed that the tumors did not take in all instances. The number of transplants, however, was small and the tumor used was one with a great variability in the number of takes even when untreated. Having noticed pycnotic and other changes in the nuclei and the formation of monstrous cells, he makes the assumption that, since the morphologic changes in the tumor are those characteristic of the roentgen ray, it is the irradiation of the tissues that has produced the changes in the tumor cells. He does not seem to be aware of the fact that these changes are not at all characteristic of the roentgen ray, and may be produced by any physical agent, such as heat, either by directly warming the tissues in a water-bath, or by diathermy, or freezing of the tumor in the animal, and also by certain chemicals. His descriptions and photomicrographs are merely those of damaged or dying tumor cells. In such experiments, some of the tumors unquestionably die because the connective tissue, after it has been irradiated, does not react to the presence of a graft with the formation of blood vessels as easily as does the uninjured structure. As the fate of a graft depends entirely on its prompt vascularization, as has been shown by Jensen and confirmed by others, the fact that all the grafts did not take is simply more evidence of this fact.

If this experiment is repeated with a tumor of high virulence, like 180, not only does the tumor take in its usual percentage of 95 to 100, but the growth shows no morphologic alterations. The same is true of the Flexner rat carcinoma. *Evidently the general conclusions of Nakahara are not warranted from his experiments.* All such merely morphologic studies are difficult to interpret. The assumption that, because lymphocytes are present and the connective tissue grows into the receding tumor, the lymphocytes and the connective tissue are the causes of the recession, is an assumption which is no more justified than that cirrhosis of the liver is caused by the choking of the liver cells by the connective tissue that grows in between them. As a matter of fact, no pathologist today would make such a statement, every one knowing that the damage to the liver cells occurs first, and that the fibrosis is merely a replacement. That such cirrhotic fibrosis may compress the portal vein and cause ascites is another question. That is a secondary action, just as the connective tissue which forms through a tumor as the tumor cells disappear may produce a firm scar which shuts off many of the remaining cells from their nutrition, and may ultimately be responsible for the death of a certain number. The cells of a human scirrhous carcinoma of the breast seem to have the capacity to incite abundant growth of connective tissue; yet such a tumor does not cure itself.

We cannot escape from the fact that as far as animal experiments go there has been no proof as yet brought forward that the effect of irradiation on a tumor is anything primarily but a direct effect on the cells. Secondary effects by thrombosis of the vessels are unquestionably important, as the following experiment shows:

If four 1 mg. platinum needles are inserted in a square in an animal or a human tumor at a distance of 1 cm. apart, the tumor tissue between those needles will necrose after from 90 to 100 milligram-hours. The tumor tissue outside the needles will not necrose, unless the time the needles remain is something equivalent to 700 mg. hours, which is the lethal dose of radium with a tube 3 mm. from the tissue with the given filtration, a dose equivalent to five erythema doses to the human skin. Microscopic examination shows quite definitely why the tumor cells between the needles die with a dose insufficient to kill such tumor cells in vitro, and the reason for this is thrombosis of the blood vessels. The reason the tumor cells outside of the area included by the needles do not die is that an insufficient dose has been given to kill the cells directly, these cells being nourished by the large vessels coming from the periphery of the neoplasm.

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[10] Murphy, J. B.; Maisin, J., and Sturm, E.: J. Exper. Med. **38**: 645 (Nov.) 1923.

[11] Nakahara, W.: Histological Study of the Fate of Cancer Grafts Inoculated into an X-Rayed Area, J. Exper. Med. **38**: 309 (Sept.) 1923.

STUDIES ON HUMAN MATERIAL

Ewing, Alter[12] and others have made careful histologic investigations of material removed surgically after radium therapy, and have found much the same histologic pictures of lymphocytic and plasma cell infiltration around receding masses of tumor cells that were observed in the experimental studies on animals, and hence have concluded that this tissue reaction was important in cancer regression of the tumor.

Ewing[13] speaks in no uncertain way concerning the defensive reaction of the body and tissues. In the paragraph cited, he is speaking of the regression of metastatic carcinoma of the testes and embryonal tumors of the ovaries, lymphosarcoma, mixed tumors of the salivary glands, and so forth, and says that when employing less than the killing dose and repeating the exposures at intervals, most of the embryonal and lymphoid tumors react as well as with very heavy doses. "The process leading to these results has certainly not been the direct destruction of tumor cells. . . . It seems more probable that cell autolysis and growth restraint, aided by the natural defense reactions of the body, combined to bring about a gradual regression and eventual disappearance of the tumors." He grants, however, that in the adult type of tumor, such as recurring mammary cancer, uterine and intestinal carcinomas and most osteogenic tumors, external irradiation has been mainly palliative, and that while the life of the patient has been prolonged, the tumor has not been eradicated. He also states that "inasmuch as no form of radiation yields any great success in debilitated or cachectic subjects, it must be evident that radiation therapy relies heavily upon the healthy reaction of the affected tissues and the whole organism."

Again he[14] says:

> The conception of a standard dosage seems to emanate mainly from the notion that radiation cures cancer by killing cancer cells. The idea is an inheritance of the old surgical point of view, that the cancer must be extirpated, root and branch. Thus the experimentalist places a fragment of cancer tissue in a dish, exposes it to radiation, transplants it back into an animal and calculates the killing dose when it fails to grow. This type of experimentation has a definite and somewhat important place, but as an adequate basis of clinical deductions it has seldom escaped criticism when presented before scientific bodies. It has repeatedly been pointed out that such experiments wholly fail to take account of the reaction of the living tissues, which is the main element in the selective cure of cancer by roentgen ray and radium. We are therefore compelled to review our knowledge of the mechanism of the action of these physical agents in causing the regression of cancer.

Alter, on the contrary, believes the connective tissue reaction to be entirely secondary to the destruction of the tumor cells, and only of a reparative nature, taking no active part in the death of the neoplastic structures.

Among recent clinical papers favoring the view of the resisting power of the tissue is one by Drs. Evans and Leucutia.[15] Their conclusions, apparently largely inspired by Murphy's last paper—though clinical observations are also cited—are that there is a beneficial action of roentgen rays in the postoperative stage of mammary carcinoma; that a local tissue reaction is produced by suitable irradiation which brings about immunization against the carcinoma, and that excessive doses will destroy the normal protective tissue about the lesion and aggravate the disease.

On the other hand, many students of the subject have found that even with tumors of the skin viable cancer cells remain in the scar following an apparent cure with irradiation. Operations on patients who have been apparently cured of a malignant growth by irradiation and in whom the growth has been quiescent for a considerable period of years are often disastrous, owing to the rapid recurrence of the growth in the line of incision, so that there is a considerable body of evidence that despite the production of a clinical cure, viable cancer cells remain shut up in the dense scar tissue produced by the radiation. This does not prove that some of the cells may not be killed by the inflammatory reaction which the radiation sets up, but it casts considerable doubt on the effectiveness of the assumed protective agencies. The fact that, as previously stated, metastatic particles of carcinoma may remain in scar tissue or in lymph nodes for many years after the removal of a primary growth of the breast demonstrates that the healthy tissues have but little destructive capacity. The fact brought out by M. B. Schmidt that many cancer emboli do not survive and form metastases in the lung is an entirely different phase of the question. Failure to grow means that the cells are, by the coat of fibrin which surrounds them, mechanically prevented from attaching themselves to the wall of the vessels and thus obtaining the necessary capillary blood supply essential to their growth, and shows also that the respiratory motion of the lungs may play an important part in preventing the same sort of adherence to the vessel wall. Another illustration drawn from the laboratory is seen in the spleen, which is rarely involved by embolic tumor particles. But if a graft is placed directly in the organ, it grows with great facility. In human material, too, it is frequently observed that a tumor—for example, of the pancreas—may involve the spleen by direct extension and grow well in its substance, while, as is well known, embolic involvement of that organ is somewhat rare in man.

Jüngling[16] has brought forward a number of clinical observations which strongly suggest that the action of irradiation is purely a destructive one on the cell, for he has irradiated superficial carcinomas, protecting a portion of the growth by a narrow strip of lead, and then removed sections and examined them microscopically. He has found, for example, that the action on such cells is purely local and that even if a large dose was given which destroyed the cells, a strip of lead only a millimeter or two wide so protected the cells underneath it that they were apparently not damaged.

Jüngling concludes that the action of the roentgen ray on cancer is purely local and that the assumption of destructive action due to inflammatory changes is untenable.

Fischer[17] has made observations similar to those of Jüngling.

Wintz, in discussing Jüngling's paper, says that irradiation in small doses, intended to incite a growth of the connective tissue with an idea of choking the cancer cells, is useless, for the connective tissue has no such power but merely replaces the cancer cells after they are destroyed by the direct action of the roentgen ray.

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[12] Alter, N. M.: J. M. Res. **40**: 241 (Sept.) 1919; **41**: 439 (May) 1920.

[13] Ewing, James: An Analysis of Radiation Therapy and Cancer, the Mütter Lecture, Tr. Coll. Phys., Philadelphia, 1922.

[14] Ewing, James: The Mode of Radiation upon Carcinoma, Am. J. Roentgenol. **9**: 334 (June) 1922.

[15] Evans, W. A., and Leucutia, T.: Am. J. Roentgenol. **13**: 415 (May) 1925.

[16] Jüngling: Fortschr. a. d. Geb. d. Röntgenstrahlen **30**: 101, 1922.

[17] Fischer: Strahlentherapie **13**: 13, 1922.

Von Gaza[18] also says there are no observations which point to the fact that mesenchymal cells can attack healthy ectodermal or endodermal cells or their derivatives. The epithelium first must be killed and then may be attacked by mesenchymal phagocytes, and he elsewhere states that it is certain that the most active mesenchymal cells cannot attack healthy living cells such as those of uninjured cancer, and again, that the theory of a successful activation of the mesenchymal tissues against carcinoma without simultaneous severe damage of the tumor cell is without any support from morphologic studies. The only effect which is possible is that the mesenchymal proliferation shuts off the food supply, for example, by vascular lesions, and thus causes the necrosis of the cancer cells.

In a number of articles from the Mayo Clinic by MacCarty and his colleagues,[19] attention has been called to the relation between postoperative longevity and lymphatic infiltration. He says that in a small series of cases which could be thoroughly studied, the presence of extensive lymphatic infiltration by the cells of the tumor was correlated with a longer life, both in carcinoma of the stomach and in carcinoma of the rectum. Additional factors are fibrosis and hyalinization of fibrous tissue. When these are well developed, the prognosis seems to be better. MacCarty is, however, extremely cautious in assuming any causal relationship, and justifiably so, as it is perfectly possible that the lymphatic reaction and the fibrosis are secondary to the presence of a carcinoma, and that they are most abundant in the types which are not highly malignant, and therefore stand in no causal relationship to the extension of life following operation. A reinvestigation of the question by Greenough and myself, using breast tumors, has shown no correlation between longevity and lymphocytosis on this material.

COMMENT

It seems to me that this somewhat lengthy survey of a few of the more important investigations of the question of the capacity of the body to produce immunizing substances against a growing cancer can be decided in only one way, and that is according to the Scotch verdict, "not proven." It is quite possible to explain most of the observed conditions without such an assumption. Late recurrences may be due to alterations in the biology of the tumor cells, and we know from experimental work that different parts of the same tumor may be composed of cells of different malignancy. Cells may remain quiescent in lymph nodes for long periods, probably because the conditions of nutrition are different from the ones to which they are accustomed when living normally surrounded by amply vascularized connective tissue. The mere study of fixed and stained tissue can scarcely bring decisive evidence as to whether the local lymphocytosis and fibrosis is cause or effect. The clinical cures produced by radium and the roentgen ray in which viable cells still remain in the tissues do not necessarily require the assumption of immunity or a destructive action of the connective tissues. They can be explained as easily by another assumption—that the dense scar tissue immobilizes the cancer cells and the great diminution in blood supply prevents their rapid growth. The cells are put, so to speak, in a plaster cast and cannot be massaged about the body by muscular or other movements. When the tissues are incised and a large amount of blood is furnished the cells as healing takes place, they are then capable of renewed growth and the patient dies of a recurrence. I have seen such examples five or six years after apparent healing had been produced. Unquestionably, the cells are considerably damaged by irradiation. After treating animal tumors with sublethal doses of irradiation and transplanting them to a fresh host where there can be no question of immune reaction, the tumors often do not make their appearance for months, a period that corresponds to years in human beings.

With the exception of the experiments which I have outlined, which are represented on the chart, the results of animal experimentation have not been on the whole consistent and permit no conclusions in regard to primary human tumors.

In other words, the permanent cure of a cancer implies the destruction of all the cells of the growth. The body offers no assistance to therapy, and the many cures obtained in situations in which it is impossible that the cancer cells should all be destroyed must have a mechanical explanation and not one based on the assumption of an immunity reaction.

CONCLUSIONS

1. There is no evidence that the very infrequent spontaneous regressions of human tumors are due to any process of immunization.
2. There is also no evidence that the similar spontaneous disappearance of primary animal tumors is due to any process of immunization.
3. The spontaneous regressions, so often observed in transplanted animal tumors, are an entirely different phenomenon. The tumor is a graft into a healthy host and hence is not perfectly adapted to the soil.
4. *There is no cogent evidence for, and much against,* the conclusion that any process of immunization aids in the therapeutic efficacy of irradiation.
5. Clinical cures can sometimes be obtained by irradiation in situations in which complete tumor cell destruction is impossible but extensive connective tissue sclerosis can be produced, thus locking up any viable cells.
6. The production of absolute permanence of cure by radiation therapy implies that the destruction of the tumor cells must be as complete as must be their removal for effective surgery.

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[18] Von Gaza, W.: Klin. Wchnschr. 4:745 (April 16) 1925.

[19] MacCarty, W. C., and Mahle, A. E.: Relation of Differentiation and Lymphocytic Infiltration to Postoperative Longevity in Gastric Carcinoma, J. Lab. & Clin. Med. 6:473 (June) 1921. MacCarty, W. C., and Kehrer, J. K. W.: Possible Defensive Factors in Cancer of the Rectum (A Study of One Hundred and Two Cases), ibid. 7:603 (July) 1922.

Gastric and Duodenal Ulcer.—The treatment of perforation is becoming standardized. It is agreed on all hands that, whatever is done, the main factor for success is early recognition and early operation. Cases in which operation is performed within twelve hours should not show a higher mortality than 8 per cent., but the mortality advances with giant strides as delay increases. Discussion ranges round two considerations: (1) Whether to do a gastrojejunostomy at the time of the closure of the perforation, and (2) whether to drain. Opinion in England agrees that perforation occurs generally in the chronic ulcer and that in something like 20 per cent. a subsequent operation had to be done for persistence of symptoms of ulcer. Therefore there seems to be a *prima facie* case for some more radical operation than mere closure of the perforation. It must be remembered, however, that some of these perforations are in regions of the stomach where you would not choose gastrojejunostomy as the curative operation, and therefore it is unreasonable to do it just because the ulcer is perforated.—Carson: *Canad. M. A. J.*, September, 1925.

EPITHELIOMA AND THE CHRONIC VARICOSE ULCER *

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In recent years, carcinoma of the extremities has found only a small place in the English surgical literature. This is partially explained by the fact that it is often seen in persons generally otherwise incapacitated, that its diagnosis can frequently be made by inspection, and that it generally necessitates a mutilating operation for its cure.

All these facts apply especially to malignant changes that take place in chronic varicose ulcers, and from the surgical standpoint they are, indeed, mere curiosities. Viewed from the standpoint of the cancer research worker, this material assumes an interest of a large human experiment carried out for years on large numbers of persons with only the very infrequent result that a carcinoma appears; and so unusual is it that one hesitates to consider it as a result of the ulceration.

The epitheliomas, more frequently than other types of malignant disease, seem to be incited to growth by long-continued pathologic processes in the tissues. It would be expected, therefore, that ulcers arising on the basis of varicose veins, characterized by years of neglect and subjected over long periods to the various therapeutic agents believed to stimulate epithelial proliferation, and occurring as they do at the age period when other types of carcinoma show a high incidence, would be not infrequently the starting point for malignancy.

That such is not the case, is certain. The theses that have appeared on the subject are valuable because of the carefulness with which the museums and records of the larger clinics have been searched for instances of this disease with such surprisingly meager results. Nobl,[1] who described the different types of benign ulcers in great detail, states that among 4,000 inmates of the almshouse of Lainz, where about 200 crural ulcers were being treated, only one case of malignancy developing from such an ulcer had been seen. Other large municipal hospitals also furnish rare instances, though it is well known that, among the patients in all surgical clinics, varicose ulcers are numerous.

The recent paper of Grosser,[2] who reported 368 cases of carcinoma of the extremities, mentions only six crural or varicose ulcers not mentioned in the older literature.

The records of St. Luke's Hospital furnish only two instances of epitheliomas so associated with varicosities as to make the latter appear an antecedent condition.

The first patient was a very obese Irish woman, aged 65, admitted to the service of Dr. F. S. Mathews in September, 1917. The history disclosed that a small nodule had appeared many years before on the skin over the middle third of the left tibia. A slight trauma resulted in ulceration, and bleeding with progressive growth of the eroded area proceeded for ten years. The ulcer had been treated in clinics three times a week for the past four months.

The patient exhibited many senile changes and was greatly incapacitated by the pain and infection of the ulcer, though she showed no other symptoms or lesions that could be considered secondary to the malignant condition. The calf of the left leg presented a large excavation on the anterior and lateral surfaces, measuring about 14 by 9 cm. and from 3 to 4 cm. deep. The shaft of the tibia was eroded over a considerable area. The skin edges were sharp, not overhanging, but very much indurated. The base was covered with intensely offensive necrotic material, a few fresh granulations and rather flattened warty masses which were not of the fungating type but fairly solid and possessed the grayish translucent quality suggestive of an epithelial growth. The depth and wide extent of the concavity showed a far greater destructive tendency than usually occurs in an ulcer of a benign type.

The leg was amputated at the knee, and the patient made a slow but satisfactory recovery.

Microscopic sections showed that the growth was of the squamous cell type. The greater portion of the base and margins showed extensive differentiation of cell type with many pearls and broken down keratinized areas, the upper layers of the epithelium predominating. There were areas, however, in which the morphology was quite different and only the large hyperchromatic, undifferentiated epithelial cells were seen infiltrating the tissue spaces in parallel columns. If morphology is of significance, this would indicate the aggressive nature of the tumor; certainly the type of growth was exactly the same as is seen in the lip or mouth tumors (Fig. 1).

The part played by the circulatory factor might be questioned here, except that the tissues of the calf presented the unmistakable results of varicosities in the pigmentation of a bronzed or brownish color and the extensive induration and atrophy of skin and subcutaneous tissues alike. This, with a few visibly thickened and dilated veins, made the vascular condition seem a more prominent feature than the patient had regarded it.

Another case illustrates a second and more frequent type of growth, and one in which the hyperplastic character is very noticeable.

A laundress, aged 66, of Swedish descent, admitted to the service of Dr. H. H. M. Lyle in July, 1919, complained of swelling of the right leg as well as of the ulcer. She had had bilateral varicose veins for nineteen years, and the scars of old ulcers were present on the left calf. Ulceration had occurred on the right leg not more than four months previous to admission. The growth had progressed rapidly, and she had been confined to bed for five weeks.

The right calf and ankle showed an unusually widespread fungating growth with sinuous edges, bordered by low papillary masses everted on the skin surface. These nearly covered the base also, although they were intermingled with much gangrenous tissue. The masses were much firmer than granulation tissue, and very vascular. The growth had spread over two thirds of the circumference of the leg in the lower and middle third and over the lateral malleolus. There was a small perforating ulcer over the fifth metatarsal bone. Even in the areas not obviously infected, the tissues of the foot and ankle were extremely edematous, and the peroneal and tendons of the anterior muscle group were exposed and partially atrophied (Fig. 2).

The extremity was amputated in the middle third of the thigh, the wound healed, and the patient has remained well for five years.

Microscopic examination showed (Fig. 3) that the papillary projections are composed of a highly differentiated type of squamous cell epithelioma.

LITERATURE

Slight inspection of the literature will at once show that it is difficult to separate these carcinomas from those originating in other chronic inflammatory processes. In many of the older accounts, also, no attempt is made to exclude contributory causes, such as syphilis or other dermatologic lesions. No classification can, therefore, be considered wholly accurate even though most of the "scar carcinomas" and "fistula carcinomas" can be excluded.

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* From St. Luke's Hospital.

* Read before the Section on Pathology and Physiology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Nobl: Der varicose Symptom Compiex, Berlin, 1918, p. 143.

[2] Grosser, M.: Cancer of Leg, Arch. f. klin. Chir. **127**: 529, 1923; abstr., J. A. M. A. **81**: 2156 (Dec. 22) 1923.

The former are not numerous, the reported cases numbering less than fifty if we exclude the lupus scars. They are epitheliomas usually arising on the extremities, but, like other epitheliomas, are more numerous on the face. They have followed, usually after many years, the healing of a single lacerated wound or a burn, though in rare instances other forms of trauma, as a dog-bite or freezing, have preceded the scar and been regarded as the cause of it by the patient. A case which is illustrative of the group is that of Volkmann.[3] The patient was a man who sustained a lacerated wound of the calf at the age of 27. This healed without prolonged suppuration or bone necrosis, but the scar broke down thirty-five years afterward and the resulting ulcer grew rapidly with every indication of malignancy. Such a condition has, if syphilitic, as a few of these may be, the disturbance in its vascular supply, possibly not much different from that which obtains in the region of a varicose ulcer. This might be considered as evidence that the altered and deficient circulation cannot be regarded as an important factor in developing malignancy, and, in fact, it might well be thought an inhibiting influence.

The fistula carcinomas, of which about the same number, forty-five, have been described, have also developed most frequently on the calf or ankle. These patients have practically all suffered from early osteomyelitis, which later became chronic and eventually gave rise to an ulcer of considerable size. In many cases the infection dates from childhood, and the chronic sinuses like the crural ulcers may or may not have healed at times; but finally tumor tissue has appeared, in the fistulous tract, in the ulcer, or in the scar tissue surrounding them. The malignant process has, of course, added to the destructive bone lesion so that the end-results may be indistinguishable from the varicose epitheliomas, which also secondarily absorb and erode bone. Either type not infrequently has caused a spontaneous fracture.

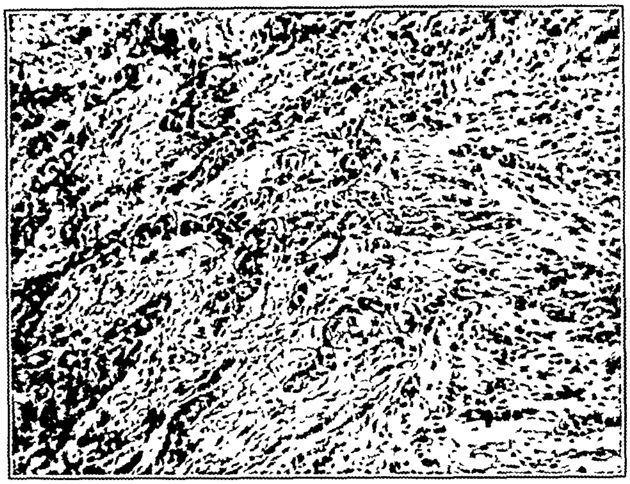

Fig. 1 (Case 1).—Margin of ulcer, showing relatively undifferentiated type of cell and infiltrating character of growth.

Of the third class, or varicose carcinomas, about fifty cases have been described, while six others have been referred to in the literature, or described orally in personal communications, exclusive of those in persons known to be syphilitic. It is unnecessary to give detailed accounts of all the reported cases, as the clinical histories are remarkably similar; but a survey of the literature is of sufficient interest for a brief summary.

The most comprehensive discussion is the monograph of Volkmann,[3] who, in 1889, collected the cases of this type as well as the other carcinomas located on the extremities. Twenty-four were associated with varicose ulcers.

Gant,[4] in the same year, described another case seen at the Royal Free Hospital in London, although this, like a few others, may have arisen from a cutaneous growth which became infected and ulcerated. In any case, the ulcer remained nearly stationary for a long period before there was any evidence of malignancy.

Michael,[5] in 1890, reviewed Volkmann's material and added reports of twenty-six cases of carcinoma of the extremities seen in the Tübingen clinic, eight of them associated with crural ulcers.

Druckenmuller,[6] in 1895, reviewed Michael's cases, and contributed accounts of three more cases, one being only the third on record in which bilateral crural ulcers both formed the starting point for carcinomas. Druckenmuller's case occurred in a woman, aged 58, who had had ulcers on both legs since 25 years of age. Both had healed at times, only to break down again, but for the past year there had been rapid growth in each. One was 9 cm. in diameter, the other twice its size, and both showed fungating masses on base and edges.

Volkmann's patient was a man, aged 51, who also had had crural ulcers for twenty-five years with rapid growth in each for six months. There were large cauliflower-like masses on the outer sides of the ulcers. Local excisions were done, with a rapid recurrence on one side.

The third bilateral case is a recent one reported by Grosser from the Urban Hospital. The patient had bilateral ulcers for many years, one eventually becoming carcinomatous; the leg was amputated, but seven years afterward the patient returned with the same condition on the other leg.

These three cases are of interest for, like other multiple growths, they suggest the important question of the part that is played by individual predisposition.

Nobl describes with illustrations, three cases which he had seen and which depict three slightly different forms that this type of growth may assume.

Neumann[7] and Woolsey[8] each briefly describe one specimen, and DaCosta[9] adds two more.

A more recent discussion is that of Gottheil,[10] who saw only three specimens in his experience at the Metropolitan Hospital, New York, where, of course, a large number of dermatologic lesions was constantly observed. He believes that the chronic dermatitis rather than the vascular condition should be regarded as the important preceding lesion, and thinks that whatever alteration there may be in the circulation is merely a contributory factor to a process that begins in exactly the same manner as do the epitheliomas following syphilis, tuberculosis and other chronic skin diseases. In discussing Gottheil's paper, Hazen described a case seen by him in which the varicose ulcer had existed for fifteen years, and simultaneously with the onset of an acute eczema in the surrounding skin the malignant process appeared. Agreeing with Gottheil, he seems to feel that the cutaneous inflammation gave origin to the epithelioma.

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[3] Von Volkmann, Rudolph: Samml. klin. Vortr., 1886-1890, Chir. No. **335**, p. 235. Bang: Le cancer des cicatrices, Bull. du cancer **14**: 201, 1925.

[4] Gant: Lancet **2**: 698, 1889.

[5] Michael: Ueber der primaren Krebs der Extremitaten, Inaug. Diss., Tübingen, 1890.

[6] Druckenmuller: Beitrag zur Kasuistik der Carcinom entwicklung auf Unterschenkel Geschwuren, Inaug. Diss., Greifswald, 1895.

[7] Neumann: Ann. de dermat. et syph. **2**: 1058, 1898.

[8] Woolsey: Ann. Surg. **43**: 610, 1906.

[9] DaCosta: Ann. Surg. **37**: 496, 1903.

[10] Gottheil, W. S.: Cancerous Degeneration in Chronic Leg Ulcer, J. A. M. A. **59**: 14 (July 6) 1912.

Heidingsfeld, in discussing the same paper, mentions two cases which he saw at the Cincinnati General Hospital, and I am indebted to the following for oral accounts of three more: Dr. John Douglas, one case at Bellevue Hospital, New York; Dr. G. L. Rohdenburg, one case at the Lenox Hill Hospital, New York, and Dr. Lyman Richards, one case at the Turkish Hospital, Smyrna.

Grosser, extending Volkmann's compilation, describes six more cases of crural ulcers with epithelioma. All his patients had had ulcers for many years, and a woman, aged 34, showed involvement of inguinal nodes by the tumors.

De Jong, Meyer and Martineau[11] described a varicose carcinoma of the leg treated for eight years with a preparation containing tar. The patient was a man, aged 85, seen in 1916 with varicose eczema of the leg. To allay itching, the tar preparation was applied and so successfully that the patient continued the applications until 1924, when he was again seen, this time with a brown dermatitis, edema of the leg, and an ulcer with ragged, overhanging edges. A biopsy showed that the fleshy portions consisted of squamous cell epithelioma. It will be questioned whether the application of the tar preparation was effective in transforming the inflammatory condition into a malignant one, but in view of the extensive experimental work on tar carcinoma in mice, it is of considerable interest.

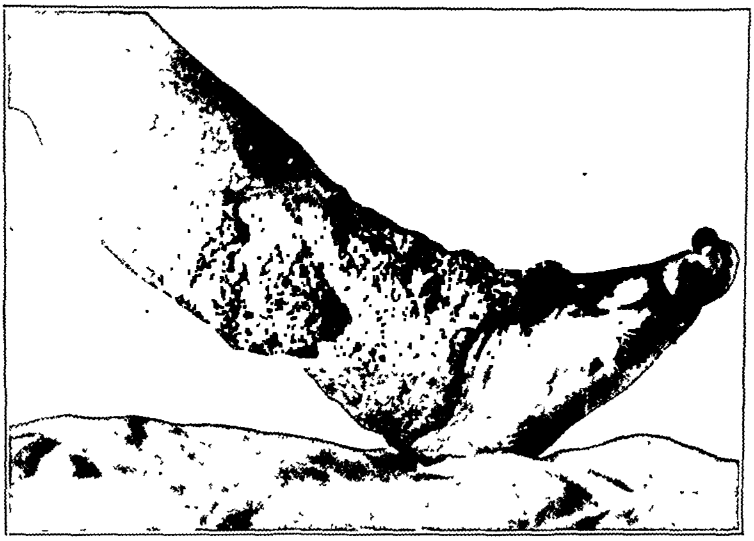

Fig. 2 (Case 2).—Extensive ulceration and papillary type of growth covering the entire surface.

Summarizing these cases as a group, we find that about the same number have occurred in men as in women, a fact not usually regarded as true of the benign varicose ulcers. Of the fifty-nine cases, the sex is stated in fifty-three. Of these, twenty-eight, or 52 per cent., were in men, and twenty-five, or 48 per cent., were in women.

The ages are given in forty-nine cases: from 30 to 39 years, three cases; 40 to 49, thirteen; 50 to 59, fourteen; 60 to 69, seventeen; 70 to 79, two. This shows plainly that the incidence between the ages of 40 and 60 is practically constant, and that it is virtually the only age period in which the condition appears.

The duration of the ulcer prior to the tumor growth is of even more interest. In nearly all instances they are said to have existed "for many years." In the twenty-eight cases in which the term is stated, the average is 21 years, with a maximum of 40 and a minimum of 10. The onset of the malignant process has nearly always been noted by the patient himself, either because of increasing pain or because of rapid growth of the exuberant cauliflower-like masses, or, in a smaller number of cases, by the rapid extension of the crater. The time elapsing between this change and the appearance of the patient in the hospital has generally been about a year, fifteen cases giving an average of fourteen months.

The diagnosis is fairly certain when these solid vascular outgrowths appear on the formerly smooth, indolent base, and the edges assume a fungating character. The warty masses are solid and fleshy, and possess a cellular translucent appearance, not seen in the small, soft granulations that are occasionally present in many chronic ulcers.

There are two distinct morphologic types assumed by these growths. In the one, which is more common, the hyperplastic tendency dominates the picture. The ulcer may be shallow, as in the second St. Luke's case, the papillary masses small and numerous, fringing the edges and base uniformly. The second type, which is rarer, shows the destructive and ulcerative aspects of the malignant process, the growth being more concealed under the margins, which it infiltrates and undermines. The warty nodules are larger and firmer than in the first type, and may be found only on the base. Not infrequently, however, the papillary growth appears in only a part of the ulcer, as at one side. In such a case, it has not been determined whether the entire circumference is carcinomatous.

Amputation has been performed in the majority of cases, generally without observed recurrences for a period of several months or years; but to attempt to draw exact conclusions regarding the outcome of these cases as a group is impossible, as relatively few have been followed for more than a year. Several, however, have been free from any recurrence or metastasis for three or four years, in one case, fourteen years; therefore complete cures are not unlikely. The mortality from septicemia was considerable in the earlier cases.

Involvement of the inguinal nodes is neither constant nor early. They have usually not been resected at the time of operation unless definitely carcinomatous. In about 16 per cent. of the cases, a subsequent metastasis has appeared in the inguinal or retroperitoneal nodes. At least three patients have died from pelvic or other extensive metastases, and two of these from hemorrhage due to erosion of the femoral or popliteal artery by such a recurrence.

COMMENT

Gottheil's assertion that the varicose ulcer is a misnomer is one that may find more dermatologic than surgical support. Of course, there is no doubt that the two lesions are almost invariably found together, and both may contribute to the end-product. It is noteworthy, however, that only a few of the dermatoses have directly given rise to epitheliomas either in the lower extremity or on the hands and face, where both conditions are much more frequent.

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[11] De Jong, Meyer and Martineau: Bull. du cancer **13**: 326, 1924.

Epithelioma arising in lupus scars is generally recognized as a fairly frequent occurrence, and may occur in either skin or mucous membrane. It is estimated by Zweifel-Payr[12] that 2 per cent. of the lesions of lupus vulgaris eventually show epithelioma. Only rarely does malignancy occur in an active lupus erythematodes. Ashihara,[13] who collected reports of about 300 cases of all types of the latter epitheliomas, pointed out that, in several larger series of cases reported from different sources, each showed the incidence of epithelioma arising from old tuberculous scars to be more than twice as frequent as those appearing during the course of a florid lupus; that is, 70 per cent. of the cases were of the former type. For this reason the dermatologists have regarded most of the cases only as scar carcinomas and do not believe that the tubercle tissue has any especial significance. Orth, however, in studying the problem from the point of view of relative tissue resistance, questions whether the effect of the tuberculous granulation tissue is not to remove in some special way the normal controlling mechanism which causes epithelial cells to cohere.

The fact remains that epithelioma of the skin is much more frequent following lupus than any other chronic skin disease.

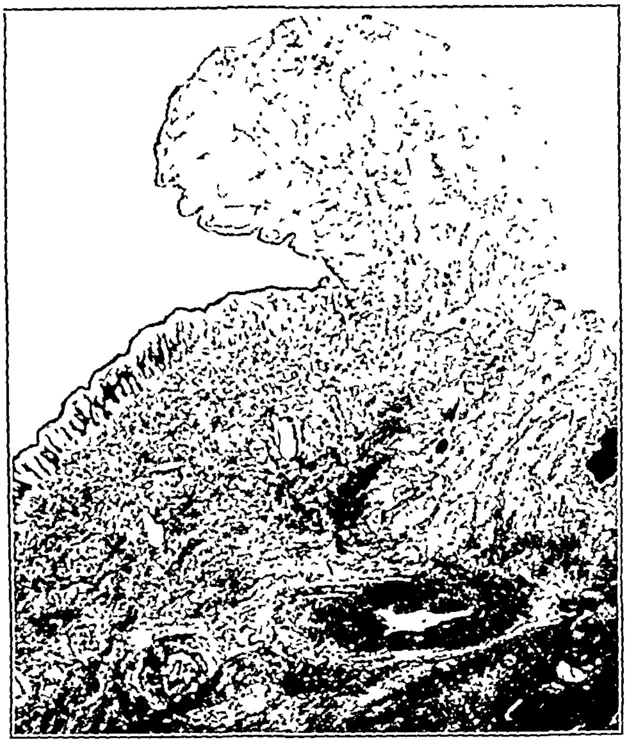

Fig. 3 (Case 2).—Papillary mass, showing differentiated type of growth; low power.

Psoriasis and syphilis are likewise possible, but unusual, predisposing types of inflammation. Roentgen-ray epithelioma is relatively common. Chronic eczema is an extremely common condition, and the inflammation extends over long periods, but it is not considered a causative agent except in the skin over the tibia. It is apparently not necessarily keratoses in which epithelial hyperplasia is a factor from the beginning which form the basis for the malignant process. It seems, therefore, that these two factors, either an epithelial hyperplasia or some specific etiologic agent, must be added to the exudation caused by irritation.

Cancer research has been directed by this observation, and successful experimental carcinomas have been produced by special agents believed to have excited spontaneous carcinomas to growth. Hot tar, which has long been believed occasionally to cause multiple human epitheliomas, as in the case described by Voigt,[14] has been used successfully on the skin of white mice and the rabbit's ear; on the other hand, the skin of albino rats is not sensitive to tar painting. The duration of the irritation is of the first importance, illustrating again the fact that the irritation alone is only one factor, and that we are largely in ignorance of the others. Irritation epitheliomas cannot be induced in six months, whereas they may be in twice that time in animals. This may be analogous to the fact that these varicose ulcers have been usually present from fifteen to twenty years before a malignant change has occurred.

Fibiger[15] has produced a few epitheliomas in the stomach of the mouse and of the rat by irritation of *Spirotera* in these tissues. This irritation also must be continued for a considerable part of the animal's life before any such growth occurs.

. In these experiments, as in the epitheliomas arising in the mouth and lips in human beings on an ulcerative or irritative basis, there is presumably a normal blood supply—the factor that is absent in these varicose carcinomas. There is no doubt that, whatever the other circumstances, a carcinoma will grow faster, when once formed, if the blood supply is adequate. To explain the rarity of these lesions, we must again take refuge behind that unexplained but obviously important question of local and individual predisposition. If the geneticists are right and cancer is due to susceptibility and irritation, it remains difficult to understand why, with so many patients exposed to this irritative condition for so many years, the hereditary tendency should be so ineffective a factor and so few epitheliomas develop. The hereditary predisposition would then be assumed to be local—a wholly impossible conception for the human race. That the epithelium of the lower extremities has always been an infrequent site for epitheliomas, despite the irritation to which they are subjected, is admitted. The response to irritation of any type in this locality is regularly in the direction of a protective reaction or benign hyperplasia, as in the callosities that occur on the feet. Epithelioma developing from such callosities is not unknown, but it is extremely rare. It is an astonishing phenomenon that, among only fifty-four leg carcinomas, three should be bilateral, and can be explained at present only on the basis of individual predisposition.

CONCLUSIONS

There are accurate reportes of only fifty-nine epitheliomas arising in chronic varicose crural ulcers.

The number of the reported cases is about the same as those arising in scars and fistulas.

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[12] Zweifel-Payr: Die Klinik der bösartige Geschwülste, Leipzig, 1924.

[13] Ashihara: Arch. f. Dermat. u Syph. 57: 193, 1901.

[14] Voigt: Beitrag zur Entstehung des Krebs auf chronischen Entzündungen und auf Narben, Inaug. Diss., Berlin. 1893.

[15] Fibiger: J. Cancer Res. 9: 367, 1919

These occur almost exclusively between the ages of 40 and 60, run a slower course than other squamous cell epitheliomas, and probably lead to metastasis later. They are in no sense benign.

It is probable that chronic dermatitis more than the varicosities and altered blood supply alone incites the condition.

These tumors seldom arise until an ulcer has been present for at least fifteen years.

Amsterdam Avenue and One Hundred and Thirteenth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WOOD AND KNOX

Dr. Francis Carter Wood, New York: I should like to say a word about Dr. Knox's paper from the general point of view of causation of cancer. She has hinted in regard to the question of hereditary susceptibility. There is no question that there are families in which a large proportion of the members die of cancer, and there are other families in which no one dies of cancer, even though they all reach cancer age. Of course, the animal experimentation done by Maude Slye in Chicago and by Bullock and Curtis in my laboratory have definitely proved that in animals a susceptibility to cancer is transmissible. Of that there is no question. The breeding experiments, however, are so complicated and take so long that if they were applied to human beings, it would mean that for the last 5,000 years both parents of these unfortunate human beings would have had to have cancer. That is a concentration of breeding which cannot occur in the human race. So the facts of the high incidence of cancer in these experimental studies cannot be applied in full value to human beings. The sixty cases that Dr. Knox has with great labor been able to collect from the literature represent an infinitesimal fraction of the population of that age, and during that time thousands of persons of the same age were dying of cancer in other areas. Must we assume, then, that there are local susceptibilities in the body, that the skin of the legs does not carry an hereditary susceptibility and that that of the tongue and lips does, or must it be a question of the potency of the irritant in the different areas? The paper raises that very interesting question, and it will be necessary to collect a large amount of material to answer it. Cancer of the tongue and cancer of the lip of course kill four or five thousand persons annually in the United States, and probably not more than one or two die of leg ulcers, perhaps not that many. What is the cause of this difference? We are at present unable to answer that question.

Dr. J. Shelton Horsley, Richmond, Va.: There is no part of the body on which irritation is so common as on the palmar surfaces of the fingers, and yet I have never seen a cancer develop there. On the other hand, at points of irritation in the mouth, cancer is common. It would seem possible that the tissue on the palms of the hands and the soles of the feet was stabilized in evolutionary times to such an extent that it acquired resistance, whereas other tissues have not acquired a resistance to new traumas, such as the use of tobacco. That, of course, is just a theory, but it is one way of explaining the very obvious difference in the reaction to irritation in the different parts of the body. Basal cell cancer presents an interesting problem. It practically never metastasizes. It varies greatly in morphology and structure, possibly because it comes from the deep layers of the epidermis and is more closely akin to the sweat and sebaceous glands and the hair follicles than spinous cell cancer, and, being closely akin, it may revert more easily to adenomatous structure. At any rate, a very distinct glandular structure sometimes occurs in basal cell cancer. In intractable basal cell cancer, after excising the cancer I have transplanted a flap from a distance with the idea that there is some natural resistance of tissues at a distance to basal cell cancer which prevents metastasis. If basal cell cancer does not metastasize, there must be a reason for it. It grows in a rather regular zone of infiltration, and it seems as if it must elaborate some material which breaks down the resistance of the normal tissue to the advance of the basal cancer. On the other hand, spinous cell cancer of the more malignant type and arising in the same region is transported and readily grows in lymph nodes. In ten cases treated on this theory, there have been five recurrences and five have not recurred. Several are of very recent date. One of the patients died from angina three years after this operation, and there was apparently no recurrence of the cancer after the transplantation of a distant flap. Recurrences in five cases were not in immediate contact with the flap nor in the flap, but in tissue a little distant from the flap, and never any closer than 0.5 cm. Sometimes they would grow to the margin of the flap and there would stop. Whether sooner or later the resistance of the flap will be broken down and the cancer involve the flap I do not know, but this has not occurred so far. In a case of spinous cell cancer, quite advanced, in which an extensive operation was done, including excision of the external ear and the tissues in the temporal region, I transplanted from the back a flap in stages so as to develop the nutrition. This was done simply for cosmetic purposes and not with any idea of cure. There was a recurrence of the cancer from the epithelial tissue lining the canal of the ear, which had not probably been thoroughly removed. That occurred about the middle of the flap and readily grew through the flap. This case may be said to have acted as a kind of control.

Dr. Isaac Levin, New York: I wish to subscribe to the statements of Dr. Wood. All we can do for a patient with an advanced cancer is to prolong his life for a while. It is interesting to note in connection with the experimental work presented by Wood that it is much more difficult in the human being to influence therapeutically a metastatic tumor than the primary condition. Surgical excision, radium and even cauterization may destroy a carcinoma of the lip, but it is extremely difficult to influence the metastases in the lymph nodes of the neck. The inoculable tumors with which Wood experimented represent in reality experimental metastases. It is difficult to offer correct analytic deductions in cancer research, since the fundamental premise, the etiology of the disease, is unknown. The investigation of Dr. Knox represents the most efficient method for the study of both the etiology and therapy of cancer. Wood uses thousands of mice and rats in experimental cancer research, and the life cycle of these animals is only two years. How much more difficult is the problem in man, in whom the life cycle is seventy years. In order to advance our knowledge in human cancer, thousands of cases have to be studied throughout the world and the results checked up in a common clearing house. I look forward to the day when every municipality in the world will maintain an institution for clinical cancer research and when all the investigators will have opportunity to compare calmly and carefully one another's results.

Dr. E. A. Case, Philadelphia: Dr. Wood has so thoroughly covered the question of immunity that there is very little to say, but I would just like to add this: I think it is the experience of every efficient pathologist who has had an opportunity to examine tissues that have been irradiated some time previously, in which a so-called clinical cure has been established, to find tucked away, carefully covered up by connective tissue, these little areas of viable cancer cells, for one occasionally finds in them evidence of proliferation. I recall one case in which practically the entire tumor was destroyed, and yet down deep in the tissues we found these cancer cells. Clinical evidence in addition to pathologic evidence has shown us that in so-called clinical cures not only recurrences but also metastases occur as late as ten or twenty years afterward. I recall one case that is quite classical in our city of a sarcoma which eventually destroyed the man's life twenty years after he had his eye removed.

Dr. A. J. Carlson, Chicago: Dr. Wood's paper, as well as the paper of Dr. Knox, seems to show that it is entirely possible to do the same accurate observation to demand the same scientific control, and use the same kind of mental processes in clinical work as in so-called laboratory research. If that is possible, why don't we insist on it; why don't we apply it universally? There are not kinds of facts, so-called laboratory facts and clinical facts. If they are facts, they are facts, and they are established in the same way. I am familiar with Dr. Slye's work, and I have waited for this type of experiments on the hereditary cancer material. I should like to know whether these strains with the high incidence of spontaneous tumors are more susceptible to the various agents that induce so-called experimental tumors.

Dr. Francis Carter Wood, New York: The possibility of the locking up of cancer cells in the tissue for long periods is familiar to all students of the disease. It may occur after radiation treatment, or after radical removal of a tumor. One interesting example was a patient with epithelioma of the lip who had been treated thirteen years previously with radium. A recurrence took place at exactly the same site as the primary tumor and with exactly the same morphology. The assumption that a new tumor had occurred at the same place is therefore unwarrantable. In other words, for thirteen years cancer cells remained in abeyance in the scar. There are many other examples of late recurrence in scars produced by treating cancer with caustic paste or after freezing squamous cell epitheliomas of the face with carbon dioxid snow; also I have seen many scar recurrences after radical mastectomy five and ten years after the operation. The facts of which Dr. Carlson spoke are well illustrated by certain experiments on rats at the Crocker Laboratory. By infesting the animals with a parasite which forms a cyst in the liver, we have been able to find those whose livers were susceptible to irritation by the production of a sarcoma. This in the ordinary run of laboratory rats is about one in 500. By breeding together those rats which proved to be susceptible to the development of a tumor, we have obtained a susceptible strain whose livers have an enormous susceptibility to the irritation of a parasite. Sometimes we get a 100 per cent. susceptibility in a litter of animals. This shows that by selective breeding the liability of an organ to develop cancer under the action of a definite stimulus can be concentrated. In other words, it demonstrates in rats what has been known for forty years in man, that a congenital tissue susceptibility is transmissible. The answer to Dr. Carlson's question brings out a theory tested by another experiment: The skin of the ordinary white rat does not react to tar painting by the production of cancer, though the skin of mice is exceedingly sensitive. We thought that possibly the strain of rats with highly susceptible livers might also have skins which had become susceptible, but on painting a large number of animals with tar no skin susceptibility was found. Thus the susceptibility was entirely for a single tissue—the connective-tissue structures of the liver.

Gland Extracts Mostly Devoid of Action.—We meet with advertisements of extracts of blood (hemoglobin), bone marrow, muscle, spinal cord, brain, lymph gland, spleen, prostate, ovary, testis, mammary gland, duodenum, pancreas, liver (bile), placenta, gastric mucous membrane and kidney, to say nothing of the adrenal bodies (both cortex and medulla, and the whole gland); thyroids, parathyroids, pituitary body (both anterior and posterior lobes and the whole organ), the pineal body, and the corpus luteum. Various mixtures of these extracts are also put on the market and are presumably sold, as e. g., ovary and mammary gland extracts, mixtures of extracts of lymph gland, testis, spinal cord, and brain; combinations of thyroid and pituitary substances, and of thyroid adrenal extracts; such combinations as "polyglandin," a mixture of thyroid, parathyroid, ovary, testis and pituitary extracts. Several of these combinations are sold with or without the addition of the drugs, under various fanciful names, as "virtilogen," "mammagen," "ferovarim," etc. Now in the case of the great majority (in fact, in all except one) of these preparations there is no evidence that any effects whatever are produced when they are given in the ordinary way by the mouth, unless they are given in such quantities as to serve as foods.—Vincent, Swale: *Proc. Royal Soc. Med.* **18**:30 (June) 1925.

REVERSE PERISTALSIS IN THE BOWEL, A PRECURSOR OF VOMITING *

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SAN FRANCISCO

It is remarkable how little has been written about the behavior of the bowel during the act of vomiting. One can read for days about the rôles played by the medulla, the vagi, the pharyngeal sensitive points, the esophagus, the abdominal muscles and the stomach, but only here and there will one find a brief reference to the bowel. Significant of this state of affairs is the fact that in Hatcher's [1] summary of our knowledge about vomiting I can find no word about the bowel.

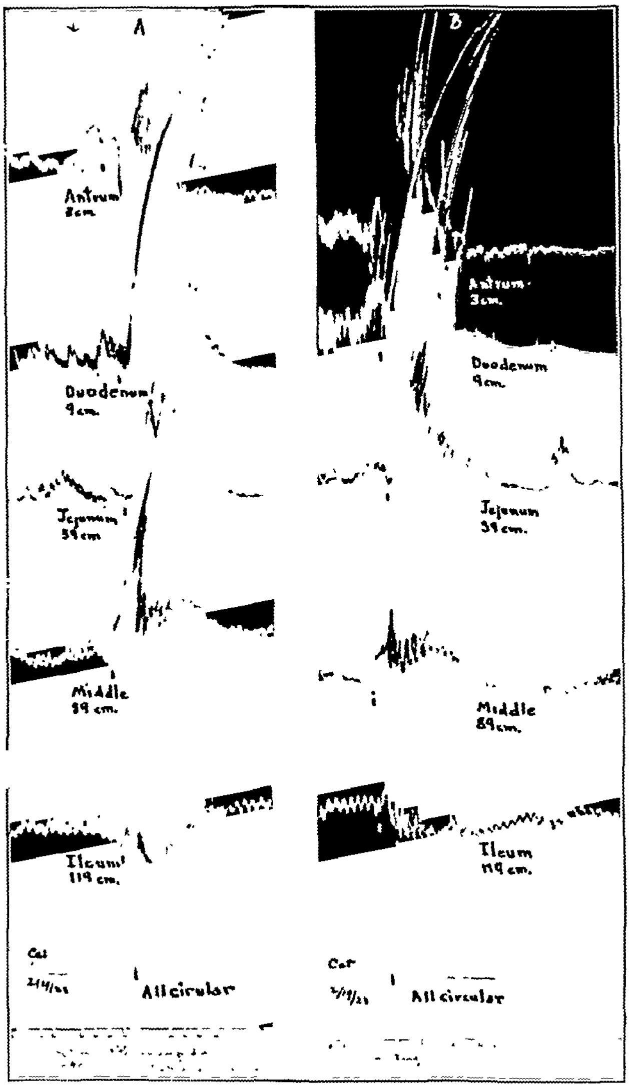

Fig. 1.—Records depicting waves of reverse persitalsis in the cat's bowel preceding vomiting.

Certainly there must be some reason for this blind spot in our vision, and the most probable one is that we have never been able to record exactly what is going on in the various parts of the bowel at the same time. Another reason is that in our lay youth we become so used to thinking of the stomach as the organ of digestion that later, when we should know better, we sometimes forget that there is such a thing as a bowel. Another trouble lately is that our attention has been diverted from the abdomen to the vomiting center of the brain, largely on account of the experiments of Eggleston and Hatcher[2] which showed that an animal can retch even when its digestive tract from cardia to anus has been removed.

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* From the George Williams Hooper Foundation for Medical Research, University of California Medical School.

[1] Hatcher, R. A.: Physiol. Rev. **4**: 479 (July) 1924.

Although there can be no question about the importance of the nervous mechanism which Hatcher and his associates have demonstrated, it seems to me that the possibility still remains that certain types of vomiting either originate in reverse peristalsis in the bowel or else are associated with it. I see no reason why the emptying of the intestinal contents into the stomach or even the mere reversal of peristalsis in the bowel should not be one of the many factors that we know can call forth those coordinated activities of stomach, diaphragm, abdominal muscles and esophagus which we call vomiting.

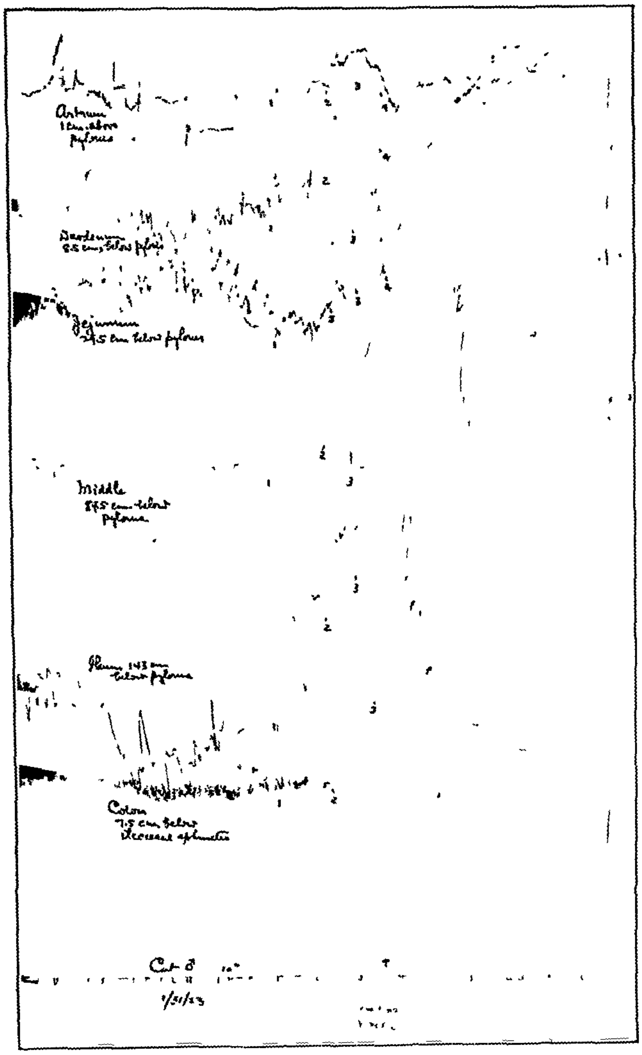

Fig. 2.—Record depicting a combination of tonus contractions and a reverse wave associated with vomiting.

We know also from the experiments of several workers on different animals that the stomach can empty itself orad without any help from the abdominal press; and we see much the same thing in infants and some adults when large amounts of material are regurgitated from the stomach without apparent effort. Actually, in these cases it is often hard to say whether we are dealing with pure regurgitation or real vomiting, because they shade so, one into the other.

Clinicians and surgeons know also that men and women with acute appendicitis or other irritating or obstructive lesions in the bowel will sometimes vomit large amounts of fluid a few minutes after their stomachs have been washed clean. This fluid will often be bile-stained or tainted with feces or enema material, showing clearly that it has come from the bowel.

The strange inability of many writers to conceive of an active reversal of peristalsis in the bowel is shown again by their rather thoughtless statements to the effect that this regurgitation is due to suction by the stomach. Just how this suction is accomplished by soft collapsible tubes that cannot actively dilate is not specified.

Twelve years ago, when I first began the study of the intestine with the animal opened under salt solution, I saw on several occasions waves of reverse peristalsis. I was watching the intestines of cats under urethane anesthesia, with their lower cords pithed, the rectum tied, and the colon filled with pea-soup or soapy water. After an hour or more the colon would usually become very active in its efforts to rid itself of its contents, and occasionally then a wave carrying some of the soapy water would travel rapidly up to the jejunum or even to the stomach.

On many occasions also I was struck by the fact that gastric regurgitation or actual vomiting had been preceded by a short period during which there was great activity in the small bowel. On searching through the literature, I found that some of the older writers on vomiting had observed this phenomenon. I observed it also in a man with a jejunal fistula. He happened to vomit one day while I had a balloon in his bowel, and it was very evident from the record that a marked increase in the activity and tone of the jejunum had, for about two minutes, preceded the retching. Actual reverse transport of material was shown by the fact that he vomited the egg-milk mixture that had been given him through the fistula.

Two years ago when Miss Mahoney and I[3] began to get good records from several parts of the cat's bowel at one time, we were able, not only to see a number of reverse rushes traveling up the bowel, but also to record them graphically. Two typical records are shown in Figure 1. Unfortunately, details of the gastric record were obscured by the retching movements. In Figure 1 *A* it will be noted that vomiting was apparently initiated by a pinching of the fundus of the stomach. The effect of this pinch was registered immediately from one end of the tract to the other, and fourteen seconds later a small reverse rush passed the recorder on the ileum 119 cm. from the pylorus. It seemed steadily to gather force as it went, and it passed the upper duodenum, 9 cm. from the pylorus, six or seven seconds later. Its rate of travel was therefore from 16 to 18 cm. per second.

Figure 2 shows what happened when the animal regurgitated so much that, for a moment, we thought that it was really vomiting. The record shows, however, that there were no retching movements. A rise in tone began practically simultaneously in "middle" and "ileum." A wave then traveled steadily from the ileum to the duodenum but did not seem to reach the stomach. At 2, there was another rise in tone, which was almost synchronous from colon to stomach. The only exception was that the duodenum responded with a drop. At 4, the animal regurgitated, and the tone of the gastric antrum fell. The interesting feature here is the reverse wave traveling up the bowel, associated with peculiar rises in tone which appear at the same time in almost all parts of the tract. I have commented before on a similar phenomenon in the stomach where systoles are sometimes associated with waves traveling up and down. Attention is called also to the marked drop in tone that occurred in the ileum two minutes before the rise began, and 4.5 minutes before the animal regurgitated.

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[2] Eggleston, Cary; and Hatcher, R. A.: J. Pharmacol. & Exper. Therap. **3**: 551, 1912; **7**: 225, 1915.

[3] Alvarez, W. C., and Mahoney, L. J.: Am. J. Physiol. **69**: 212 (July) 1924.

Figure 3 shows again how long a time the intestine may spend in preparing for a vomiting spell. We note the rise in tone of the duodenum and jejunum at *A*, three minutes before the animal began to retch. A second disturbance, which appeared throughout the tract at 1, was most marked at the lower end. It traveled upward so slowly that it reached the stomach after vomiting had begun.

Dr. Zimmermann and I have recently obtained records from a rabbit showing an orad progression of powerful contractions. Unfortunately, we could not see clearly what was going on, so we cannot say definitely that it was a reverse rush wave, but that is the logical inference from the records.

COMMENT

The fact that a number of these records show a temporary depression before the sudden rise which marks the advancing wave, brings up the question of Bayliss and Starling's law. Such a depression is assumed by most writers to mean temporary inhibition; but when we watch very carefully we see that some, or perhaps all of it, can be due to distention by the column of intestinal contents, which is pushed ahead by the contraction-wave much as a train of cars is pushed by an engine. We cannot deny that there may be an element of inhibition sometimes present, but neither can we assert that it is present until we can exclude this element of distention.

If we should decide that at least a part of this drop in the record is due to inhibition, we would be faced by a difficulty in that we could no longer follow those who say that the myenteric reflex is brought about by a certain arrangement of neurones in Auerbach's plexus. Such a structure could hardly be reversed so suddenly. Furthermore, if the myenteric reflex will work equally well both ways, up and down the bowel, we can no longer ascribe to it the faculty of maintaining the caudad direction of peristalsis.

We have some difficulties also in reconciling our findings with the gradient theory. According to that theory, waves travel down the bowel simply because there is a gradation in metabolic rate, tone, rhythmicity and sensitiveness to distention or to the presence of food, from the duodenum to the ileum. Material moves from the more active, irritable regions to less active and less irritable ones. Although this gradient is built into the structure of the bowel, it can probably be upset quite easily by agencies which either increase the activity of the lower end or lower that of the upper end. Sometimes we can show a flattening or reversal of the rhythmic gradient in sick animals or in animals that have been vomiting or refusing food, but there are puzzling exceptions. We find also that distempered dogs will have a decided flattening or reversal of the gradient of latent period without much change in the rhythmic gradient.

Flattened rhythmic gradients were actually found in a number of the regurgitating cats observed during this study, but it happens that the particular animals whose records are shown here had a good gradation running from 18 per minute in the duodenum to 10 in the ileum. The rabbit with signs of reverse peristalsis had no rhythmic gradient below the upper jejunum. This was due to a lowering of the normal rate in the duodenum and jejunum and a rise in the rate of the lower ileum. Just why this occurred we do not know, as the animal seemed to be healthy.

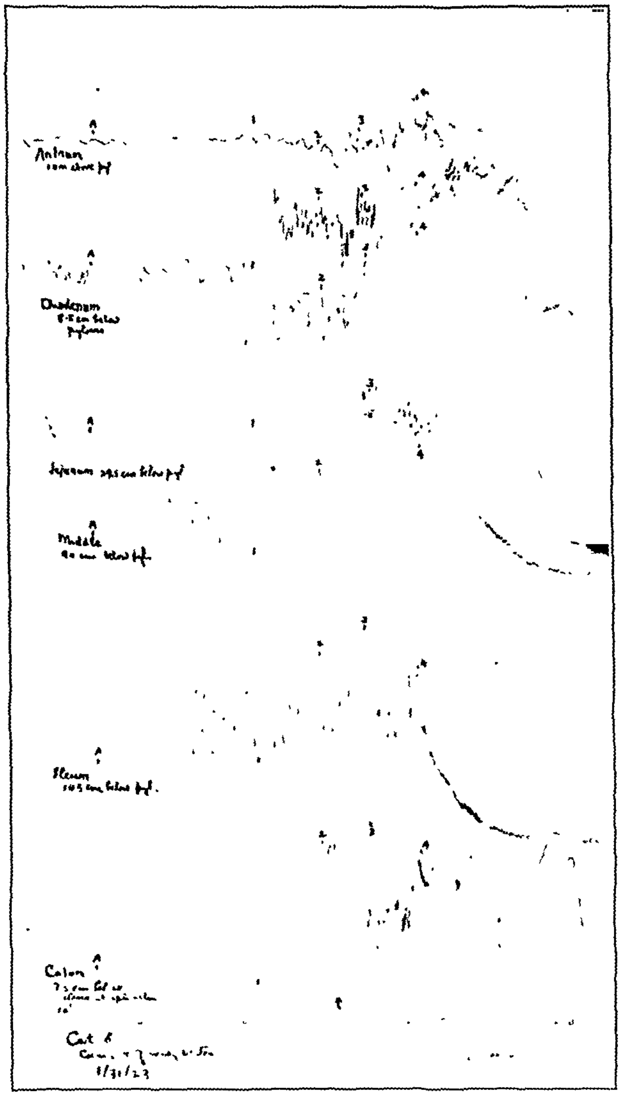

Fig. 3.—Record showing how long the bowel may take in preparing for vomiting. In this case the reverse wave reached the stomach after vomiting had started.

Studies on scores of animals during the last twelve years have given me the impression that the rhythmic gradient is not changed much by acute processes such as sudden intestinal obstructions. It seems to be flattened or reversed only if the animal is sick for some time. Reverse peristalsis may take place in animals with good gradients if the tone or irritability of the lower end of the tract is raised sufficiently. Once the wave is started orad it can travel even against the gradient, because the material that is pushed ahead is constantly giving rise to new contractions. Regurgitation caudad cannot take place because, as we may see from the records, the bowel remains tonically contracted for a minute or two after the wave has passed. By that time, the head of the onrushing column is far away. This mechanism has been discussed more fully in another article on peristaltic rush.[3]

Naturally, when there are powerful contractions and marked rises in tone in the lower ileum, waves may travel out in both directions from the irritable point, and we know that diarrhea actually is often associated with vomiting.

It is well known, of course, that regurgitation from the duodenum into the stomach is a normal happening at certain stages of digestion.

There would seem to be no question, then, that vomiting is often preceded by an increase in the activity of the bowel, by a rise in tone there, and sometimes by a wave of reverse peristalsis. Unfortunately, we cannot yet say just what bearing these changes have on the events that follow. They may lead up to the vomiting act and may be partly or largely responsible for it, or they may be but a part of the vomiting complex brought on by influences coming from the center in the medulla.

As I[4] pointed out several years ago, it is suggestive that nausea is felt by many people in ascending waves which may perhaps correspond to actual waves on the bowel. Many persons are distressed the minute their hearts develop abnormal types of rhythm, and I see no reason why abnormal types of peristalsis should not similarly register themselves in some way on our consciousness.

Just as this paper was being sent off, the article of Keeton[5] appeared in which he reports the production of nausea in human subjects by the injection of various substances into the duodenum. Some of his findings suggest that, with the waves of nausea, the bulb on the end of the tube was returned to the stomach. Ivy and Vloedman[6] have recently observed the same thing.

SUMMARY

Writers on vomiting have ignored the part played in the act by the bowel.

The regurgitation of intestinal contents into the stomach during or preceding the act of vomiting must be a common occurrence, judging from clinical observation.

Records made simultaneously from several regions of the bowels of cats, opened under a warm bath of salt solution, show that vomiting or regurgitation of gastric contents is almost always preceded by an increase in the tone and activity of the small intestine. Actual waves of reverse peristalsis have also been observed and recorded.

An increase in the tone and activity of the jejunum beginning two and one half minutes before the onset of vomiting was recorded graphically in a man with a jejunal fistula. Food put into the fistula was vomited.

Depressions which suggest a preliminary inhibition, but which may be due only to distention by the oncoming intestinal contents, are observed in some of the records. If we assume that this represents inhibition, then Bayliss and Starling's law can be demonstrated with reverse waves as well as with caudad ones, and it can no longer be assumed to be the cause of normal peristalsis.

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[4] Alvarez, W. C.: The Syndrome of Mild Reverse Peristalsis, J. A. M. A. 69: 2018 (Dec. 15) 1917.

[5] Keeton, R. W.: Nausea and Related Sensations Elicited by Duodenal Stimulation, Arch. Int. Med. 35: 687 (July) 1925.

[6] Ivy, A. C., and Vloedman, D. A.: Am. J. Physiol. 72: 105 (March) 1925.

THE DOG AS A CARRIER OF DISEASE TO MAN *

MINAS JOANNIDES, M.D.
AND
WILLIAM A. RILEY, Ph.D.
MINNEAPOLIS

Our object in this paper is to emphasize the fact that the dog acts as a carrier of disease when not properly managed. No attempt will be made to give a detailed discussion of the various diseases that a dog may carry. Our purpose will be accomplished if groups interested in public health and hygiene will consider the dog as a possible carrier and study him from that point of view.

The fact that the dog is a carrier of disease has been recognized by parasitologists and zoologists all over the world. With the exception of the work of M. C. Hall[1] in this country and Cameron[2] in England, no recent concentrated effort has been made to bring this problem before the general public or even before the medical profession. In Minnesota, some attempts have been made to bring the topic before the medical profession.[3]

There are two modes of disease transmission by the dog; first, when the dog contracts a disease and carries it to human beings, or when it acts as an intermediate host of various parasites; second, by coming in contact with some infected article and carrying the infection into the household. As a pet, the dog has become a very intimate member of the home. The average pet dog is allowed to lie on its master's bed, or even to eat from the same plate. The dog is allowed to roam, and on coming back is permitted to play with the children of the family, and thus renders possible infection with various animal parasites, skin diseases, or pathogenic bacteria.

During the last two years, we have examined the intestinal lumen of all our laboratory dogs that came to necropsy. Our observations convinced us that it would be unusual if a dog did not have intestinal parasites. Although most of the parasites have adapted themselves to the conditions found in the dog's intestine, and perhaps may not be obnoxious in the human intestine, still there are parasites, such as various trematodes, nematodes and cestodes, that are definitely pathogenic for man. The dog may carry skin parasites, such as scabies, fleas, lice or ticks. Of the diseases of man caused by the grosser animal parasites, echinococcus is the most serious. Although more than 350 cases have been reported for this country,[4] the actual number of infections is undoubtedly much greater. Practically the only primary host of the echinococcus is the dog.

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* From the laboratory of Experimental Surgery and the Department of Entomology, University of Minnesota.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Hall, M. C.: The Dog as a Carrier of Parasites and Diseases, Bull. 260, U. S. Dept. Agric., Nov. 23, 1915.

[2] Cameron, T.: The Dog as a Carrier of Disease to Man, Lancet 1: 564 (March 18) 1922.

[3] Joannides, Minas: The Relation of the Dog to Public Health, Minnesota Med. 8: 302 (May) 1925.

[4] Joannides, Minas; and Riley, W. A.: Echinococcus Cyst in the Scapular Area, Report of a Case, Arch. Surg. 9: 537 (Nov.) 1924.

The fact that the disease is most prevalent in localities where the dog is in very intimate contact with human beings is a striking illustration of the rôle this animal plays in the transmission of human disease.

Cases of pulmonary tuberculosis in the dog have been reported. Müller and Glass[5] state that tuberculosis in the dog can be developed in one third of those inoculated experimentally. The dog apparently has greater resistance to tuberculosis than cattle. It is possible that the tubercle bacillus infecting the dog may be a distinct type. Be that as it may, the dog easily can carry human tubercle bacilli on its hair, paws or other parts of its body. Similarly, the dog may carry other infectious diseases, such as diphtheria, scarlet fever, measles and smallpox.

It is common knowledge that rabies is transmitted to man chiefly through the dog. Epidemics spring up in various parts of the world, chiefly because the dog is not controlled sufficiently to render it harmless.

It is not our intention to condemn the dog as the cause of numerous difficulties. It is the dog's master who is responsible because of his lack of education along the lines of prevention, and also because of neglect toward the animal. Our contention is that if a man likes a dog sufficiently well to make it a pet, he has a duty to perform in keeping the animal clean and training it to avoid contact with infected materials. The dog can be trained to do almost anything; therefore, it should be an easy task to teach it not to lick the baby's face or hands or take food from his plate. In the presence of infectious diseases, the dog should be quarantined with the rest of the household. Periodically, vermifuges should be given, this treatment best being carried out by the veterinarian. Similarly, the veterinarian can protect the dog's skin from infection with mange, ringworm or other skin diseases. Epidemics of rabies should be a danger signal and an indication to muzzle all dogs in the neighboring localities. Stray dogs should be disposed of. Castration may be resorted to as a means of keeping the dog at home, thus preventing, in a measure, the possibility of infection of the dog and secondarily of man. Finally, the dog should be treated as a dog and not as a human being.

Probable method by which Dipylidium infection usually occurs. From Riley and Johannsen's Handbook of Medical Entomology.

ABSTRACT OF DISCUSSION

DR. R. P. BATCHELOR, Palmerton, Pa.: We must acknowledge that the dog is a definite carrier of disease to man. Scarlet fever, diphtheria and other human diseases are known to have been spread by dogs. Human echinococcus and dipylidium infections have been traced to this source. The danger from rabies is ever present. But have we any scientific basis for believing that the common intestinal parasites of dogs are passed on to man? Puppies are notoriously full of such parasites, and their close companionship with children should cause widespread infection to them. Yet I think many of us in looking over our cases find rather interesting data. I have noticed that the children infected with intestinal parasites are in large part those with very unclean habits, and many of them give no history of close association with dogs. On the other hand, many children of families owing dogs, children who have been in constant intimate contact with these pets, have shown no evidence of any intestinal parasites on repeated stool examinations and in spite of the fact that the pets have been in many cases heavily infested. Perhaps the supposed bactericidal action of the dog's saliva may be a factor of safety in this matter.

DR. E. E. SMITH, New York: A case of a subconjunctival echinococcus cyst came to my attention in New York in the past winter in the eye service of Dr. George Ray Hare, which it was suggested might be of external origin and which may have reached the eyeball in the manner called to our attention this morning.

DR. H. F. SMYTH, Philadelphia: In the community in which I live we have had more or less rabies. There was one striking outbreak in which five or six dogs in the community were bitten and I think one person. The owner of a pet dog, a woman, came down in the morning, opened the front door, and noticed that her dog, who had been out, was acting queerly. She was afraid to let him in the house and left the dog out, and that dog ran through the town, biting a number of other dogs. The same idea of lack of responsibility is seen in the custom of people going away for a few days and leaving their pets on the town.

DR. WILLIAM J. HICKSON, Chicago: In the last week I have seen dogs imported from Ireland, a Russian wolfhound recently over, and police dogs from Germany, and I think we had better be on our guard against introducing forms of parasites they have in Europe that are not common here that might be carried by these dogs. Such investigation could be made in quarantine.

DR. OSCAR DOWLING, Shreveport, La.: I trust that we may soon have a law or regulation throughout the United States which will require that every owner of a dog shall pay $2 license for that dog, the money to be used for rabies vaccine and the employment of veterinarians to administer it. I understand that 50 cents would cover this charge; then 50 cents would be left for the town or county and 50 cents for the health department with which to carry on some other work. In Louisiana we have had occasion to send out many of these treatments. They cost us $20 each, and in some instances we have sent as many as ten or fifteen into a community where we have reason to believe $200 is more than all the dogs in that section are worth. I see no reason why we should not arrive at some arrangement by which we may protect the public.

DR. MINAS JOANNIDES, Minneapolis: There are three types of roundworms that are found in the dog and may be found also in man. These are, *Eustrongylus gigas, Trichinella spiralis* and some of the ascarids. Worms in the dog are so common that it is the unusual thing not to find them in the dog's intestine. Not all of these are necessarily pathogenic to man. I called attention to the excellent paper of Dr. Hall. Again I wish to refer to his paper because he writes extensively on this subject. As a carrier, the dog may act as an intermediate or a chief host. In some instances the intermediate host is the same for both man and dog. Such is the case of the dog flea that carries *Dipylidium caninum* both to dog and to man. With reference to the echinococcus cyst of the eye, the infection very likely was implanted through the blood or lymph stream in a manner similar to a case of echinococcus cyst of the scapular area reported by me in the *Archives of Surgery* in November, 1924. Rabies is prevalent because owners of the dog have more regard for their dog than they have for the general public. Dogs are allowed *to run loose without any restriction. In Great Britain, any* new dog that comes into the country is quarantined for six months before it is let loose. A regulation of this sort might be of some help in this country. I should like to emphasize again the importance of quarantining pet animals during the presence of a quarantined disease in the household. Under the present régime we keep children from school, but we allow the infected dog to play with children of the neighborhood and thus carry disease from that household. The point of emphasis in this paper is the necessity for the education of the medical profession and the public along these lines, rather than placing restrictions on the dog and its master by means of legislation. If we educate the public by having talks in churches, luncheon clubs and schools, and illustrate our points by means of lantern slides or specimens, I think the public will be favorably impressed. The method instituted by Dr. O'Brien at the University of Minnesota for exhibiting preventive medicine measures in a recent health exhibit is a very practical one.

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[5] Müller, G., and Glass, A.: Diseases of the Dog and Their Treatment, Ed. 4, Chicago, Alexander Eger, 1923, p. 302.

STONES IN THE KIDNEY PELVIS

A NONOPERATIVE METHOD OF REMOVAL WITH THE AID OF THE CYSTOSCOPE

BRANSFORD LEWIS, M.D.
ST. LOUIS

To meet the requirements demanded by a person of the stone-forming habit may be very difficult. The patient concerned in this report was subjected to so many operations for the removal of stones from both kidney pelves and ureters that further operative measures became a serious question. In view of his lowered vitality and the distressing after-effects of operations, *something else had to be done.*

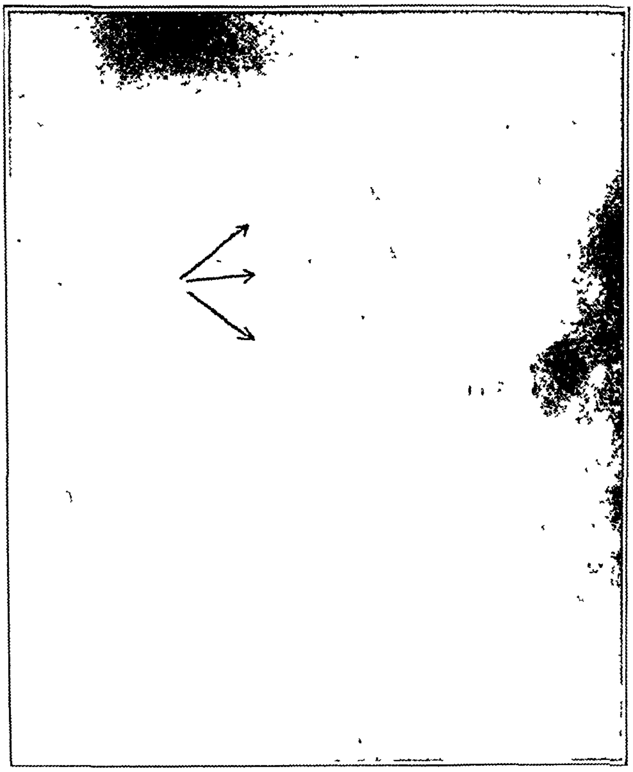

Fig 1 —Stones in left kidney pelvis and catheter in left ureter, Dec. 21, 1923.

REPORT OF CASE

F. K., a student, aged 22, who first consulted me in June, 1920, for a year had been having typical attacks of renal and ureteral colic on the left side, accompanied by the passage of bloody urine and occasionally a small stone. July 10, by cystoscopy a stone was removed from the left ureteral orifice, after slitting with ureteral scissors.

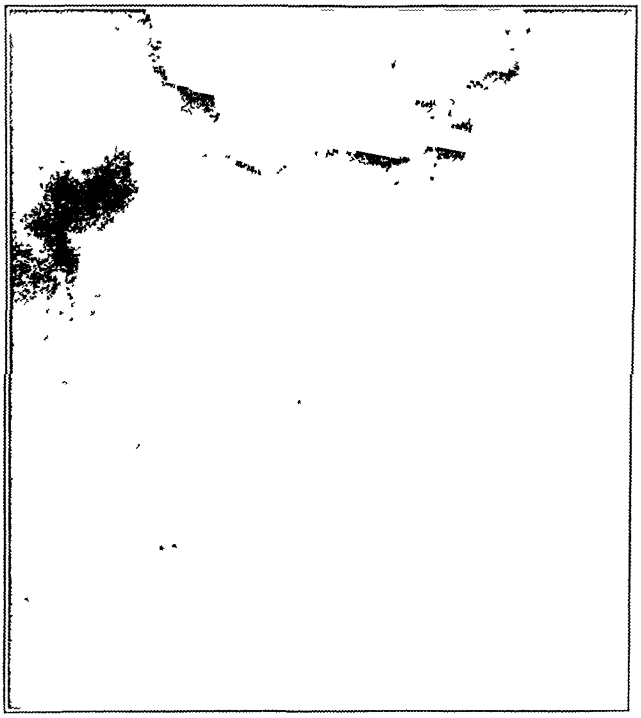

Fig 2 —Dilated left kidney pelvis and ureter, March 6, *1923:* stones gather in lower calix

The patient was placed on a meat-free diet, with forced fluids, and was apparently free from further trouble for nearly a year. But, in the summer and fall of 1921, the urine clouded again, and examination disclosed a stone the size of a hazelnut in the right kidney pelvis. No shadow or evidence of stone was found in the left kidney at this time

November 9, under general (ether) anesthesia, a stone was removed with some difficulty from the right pelvis. It was so adherent that it was partly broken in the removal, but all the pieces were picked or washed out. On recovery the urine was again clear, and the wound was healed in a month There was some excess of phosphates at this time. About March 23, 1922, the patient passed two small stones. April 15, cystoscopy and the roentgen ray showed some shadows of small stones in the left kidney pelvis, four of which passed after pelvic lavages and ureteral dilatings. Acid sodium phosphate and a preparation of hexamethylenamin were given internally.

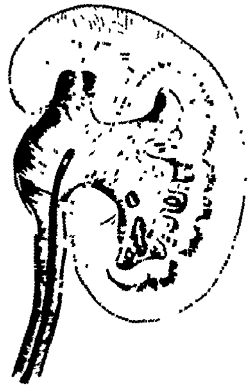

Fig. 3 —Natural position; stones in lowermost pocket

March 5, 1923, stone shadows were again demonstrated in the left kidney pelvis, low down One stone passed into the ureter in the next few weeks and was hung up there until removed by left ureterolithotomy on April 26. This stone was the size of a hazelnut. Irrigation through a retained ureteral catheter, slow convalescence and return home after many months of illness followed. November 15, cystoscopy and the roentgen ray showed one larger shadow in the right and two *smaller* ones in the left kidney.

November 28, right nephrolithotomy was performed. The patient was very anemic (red cells only 2,800,000) during this period, and was given a blood transfusion December 8, with benefit. But it was apparent that he could not stand more major operating, notwithstanding the presence of more shadows in the left kidney pelvis, the right being kept free and clear by frequent pelvic lavages.

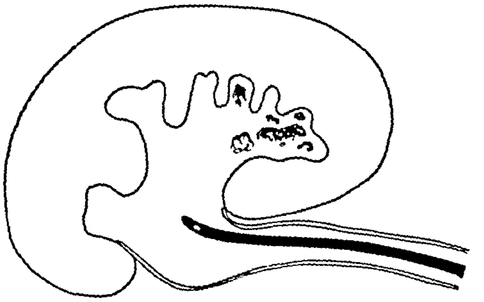

Fig. 4.—Changing the position, elevating the dependent pocket and lowering the outlet.

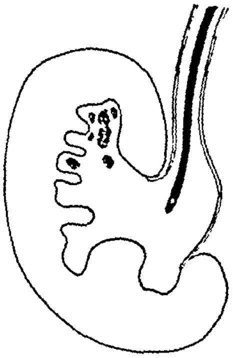

Fig. 5.—Further change in position, increasing the effect shown in Figure 4.

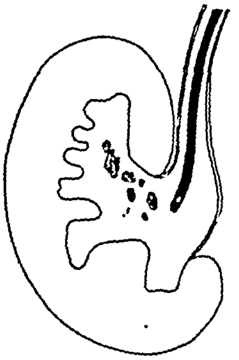

Fig 6.—Pelvis and upper ureter filled with injected fluid providing for release and escape of stones

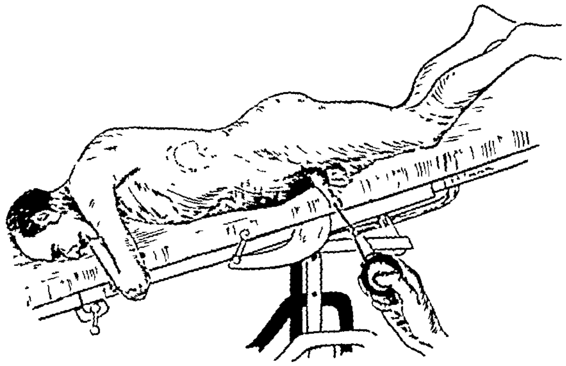

Fig. 7.—Injecting the pelvis while in the inverted position.

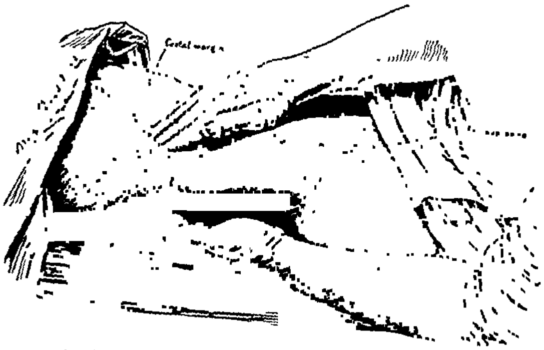

Fig. 8.—Applying succussion to the flank while in the position shown in Figure 7. (After Kelly and Burnham)

It was at this time (Dec. 19, 1923) that I first put into effect the measure to be submitted. As may be seen by the roentgenogram (Fig. 2), the left pelvis and ureter were both well dilated, indicating that if a stone, even of considerable dimensions, were dumped into the pelvic end of the ureter, it would stand a good chance of passing through the ureter, the caliber of which had been enlarged by the use of bougies and dilators. Roentgenograms of this period (Fig. 1) showed several small shadows and one or two large ones in the lower calix which formed a pocket at the bottom of the left pelvis,

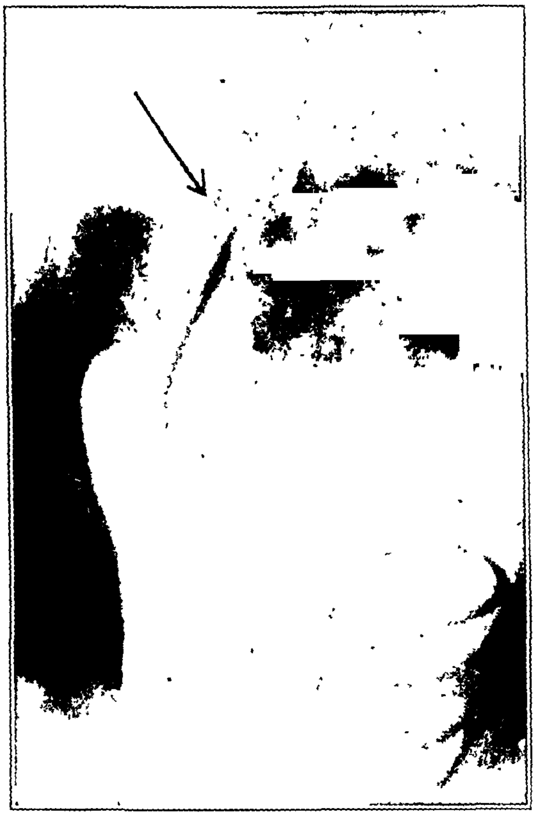

Fig. 9.—Good sized stone in left ureter at end of catheter, April 18, 1923.

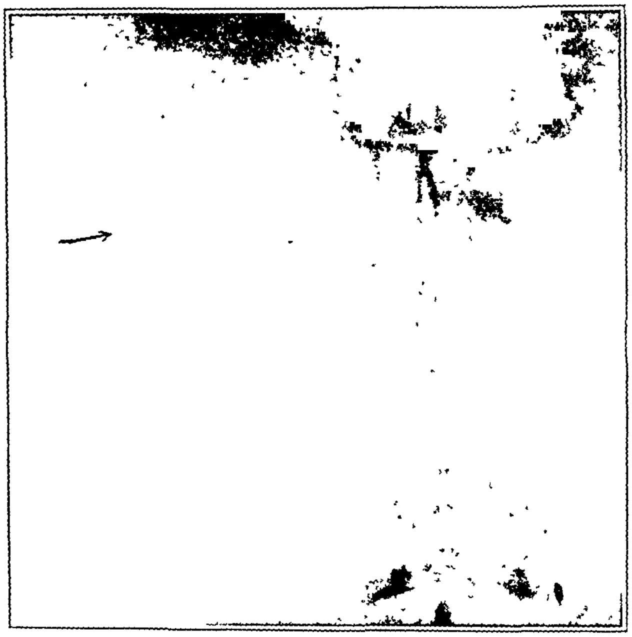

Fig. 10.—Two stones in lower calix of left kidney pelvis; March 18, 1924, removed by cystoscopy and shaking

the most dependent location. Obviously, they were liable to remain indefinitely unless removed by active measures of some sort. It occurred to me that if the kidney could be turned upside down, so to speak, and the pelvis distended with fluid at the same time, both the release of the stones and their escape from the cavity might be promoted. This object might still further be enhanced by succussion movements and energetic massage applied to the affected kidney through the lumbar wall. The successive stages of these manipulations are shown diagrammatically in Figures 3 to 8. They were carried out for the first time on the morning of Dec. 19, 1923; and when the patient was dismissed he was told in jest that he would pass a stone at 3 o'clock that afternoon. On calling the next morning, I found the patient wreathed in smiles and much pleased in that at just 3 o'clock the previous day he had passed a good-sized stone, shown in the accompanying collection.

The succussion treatments were administered at intervals during the following year, with results so gratifying that about seventy-five stones have been evacuated; and during the last five or six months, both kidneys have been kept fairly clear of concretions.

A list of the treatments with their results is given in the accompanying tabulation.

The patient meantime has improved much in his physical and mental condition and has increased in weight; the urine has been much clearer than formerly, synchronizing with the roentgen-ray evidence, which for several months has failed to show stone shadows on either side. But, notwithstanding this fact, small concretions have been brought down on numerous occasions by the treatments, although they were not shown by the roentgen ray. They have been too small to be shown by the ray. While that does not speak altogether well for the accuracy of the ray, it does support the efficiency of the treatments, since all such concretions, if left in, would grow and in time become demonstrable by the ray and also produce their destructive effects on the kidney. As it is, the patient is in better general and local condition now than he has been during my previous acquaintance with him (five years).

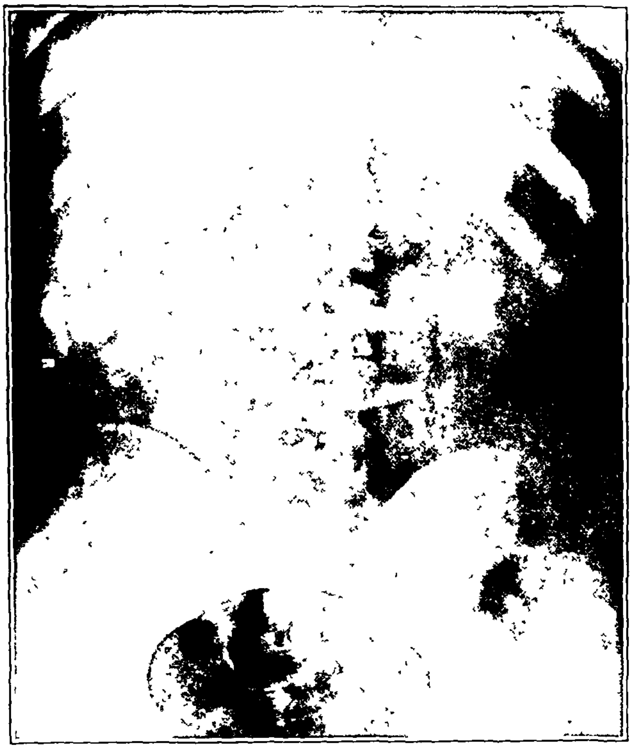

Fig. 11.—No stone shadows, after succussion treatments

COMMENT

It will be noted that a considerable number of the stones thus removed are of very good size.

It is realized that other questions might be brought up, as to the propriety of elevating or replacing the kidney to favor drainage—methods of doing away with the stone-forming habit, etc.—but these questions will not be taken up in this presentation. I merely wish to describe a nonoperative method of removal of stones from the kidney pelvis that has given gratifying success and relieved a tense situation.

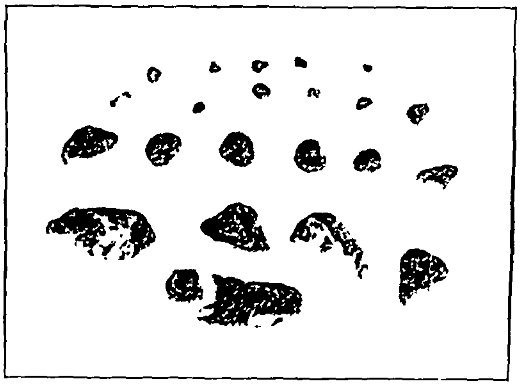

Fig. 12.—Stones from the kidney pelvis, removed during the year 1924 by cystoscopic succussion methods.

FINDINGS, TREATMENTS AND RESULTS

Cystoscopy and Succession	Results
1. Dec. 19, 1923, 8 a m.	Dec. 19, stone passed 3 p. m.
2. Dec. 24, 1923, 8 a. m.	Dec. 26, one stone passed
3. Dec. 28, 1923, 8 a m.	Jan. 2, 1924, two stones passed
4. Jan. 8, 1924	Jan. 10, large stone passed
5. Jan. 16, 1924	No stone passed
6 Jan. 23, 1924	No stone
7. Jan. 27, 1924	No stone
8. Feb. 1, 1924	No stone; irrigation fluid returns clearer
9. Feb. 6, 1924	Feb. 9, one small stone after two days' colic
10. Feb. 11, 1924	Feb. 14, two small stones
11. Feb. 14, 1924	Feb. 16, one small stone
12. Feb. 20, 1924	None
13. Feb. 23, 1924	None
14. Feb. 26, 1924	None
15. March 1, 1924	March 2, one stone
16. March 10, 1924	None
March 18, 1924	Roentgen ray showed three stones in left pelvis
17. March 21, 1924	March 21, one stone
18. March 25, 1924	None
19. March 27, 1924	March 28, two stones
20. April 1, 1924	None
21. April 6, 1924	None; goes home
22. May 6, 1924	May 6, one stone
23. May 11, 1924	May 13, one stone
24. May 16, 1924	None
25. May 21, 1924	May 21, colic same day; required four days for passage of largest calculus, May 25
26. June 3, 1924	None
27. June 19, 1924	None
28. July 2, 1924	July 2, two stones
29. July 18, 1924	Roentgen ray showed two small shadows lower pole left kidney pelvis; large shadow absent
30. Aug. 1, 1924	None
31. Aug. 18, 1924	Aug. 23, one stone after two days' colic
32. Aug. 26, 1924	Catheter and roentgen ray; one shadow, left pelvis
33. Aug. 30, 1924	Succussion treatment; no stone
34. Sept. 10, 1924	None
35. Nov 10, 1924	None
36. Nov. 15, 1924	Nov. 16, one stone
37. Dec. 15, 1924	Dec. 17, one stone
38. Jan. 20, 1925	Colic three days; large stone passed, Jan. 24
Jan. 25, 1925	Tonsillectomy
39. Feb. 3, 1925	None
40. March 10, 1925	Roentgen ray showed no shadows; urine drained clear
41. March 20, 1925	Roentgen ray failed to show shadow; March 23, small stone passed
42. April 2, 1925	April 4, colic; April 5, fair sized stone passed
43. April 7, 1925	April 7, shower of small stones (about ten) passed within two hours after succussion treatment

The transit of a stone is described by the patient as follows: After feeling bad, with headache, nausea, nervousness and sleeplessness for three days, cystoscopy was done and succussion treatment given, March 20, 1925, at about 8 a. m. While considerable relief from the symptoms appeared on the same day, it was not until the following morning at about 8 o'clock that the patient felt the stone moving down the ureter. This he said he distinguished with certainty, the stone passing through the entire ureter in the space of about thirty minutes. On the stone escaping from the ureter into the bladder, the patient felt instant and complete relief. The stone passed from the bladder at the second urination after its entrance into that organ.

Clinical Notes, Suggestions and New Instruments

A SIMPLE SPLINT FOR BASEBALL FINGER

PHILIP LEWIN, M.D., CHICAGO

This is a simple splint which I have found very effective. It is useful in the treatment of baseball finger, mallet finger[1] or "drop phalangette,"[2] and arthritic flexion of the end phalanx. The principle may be useful in the treatment of hammer toe.

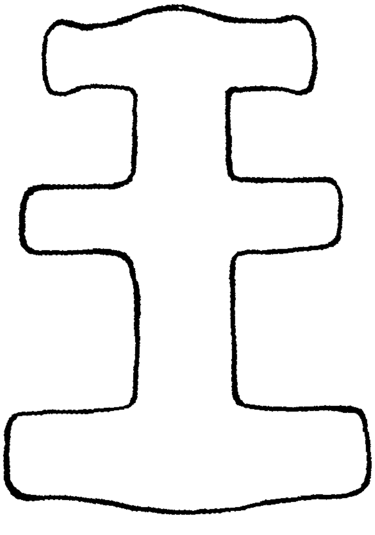
Fig. 1.—Pattern for splint.

It is made of aluminum, although duralumin, copper, brass, German silver or silver may be used. It is very light, self-retaining and easily adjustable to any position, including hyperextension. It is permeable to the roentgen ray, can be immersed in water, and is inexpensive. The splint can be made to fit so snugly that it must be "soaped" or wet to be removed, like a tight band ring. It can be worn under a glove, and one of my patients drives her car while wearing it.

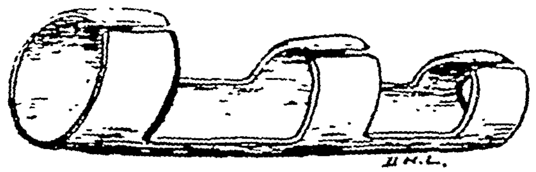

Fig. 2.—Splint.

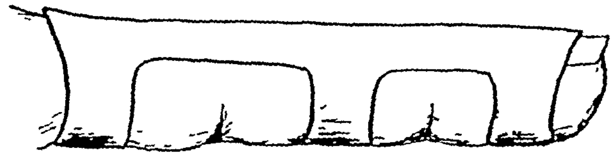
Fig. 3.—Splint applied.

A pattern is made as shown in Figure 1. The pattern is then shaped to that of Figure 2 and applied as in Figure 3. During the latter part of the treatment, each patient should have two splints; one unlined to be worn if the hand is to get wet; the other lined with chamois for the dry hand.

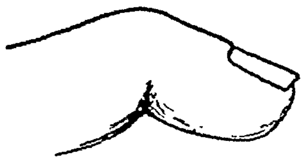
Fig. 4.—Flexion deformity of distal phalanx; "drop phalangette."

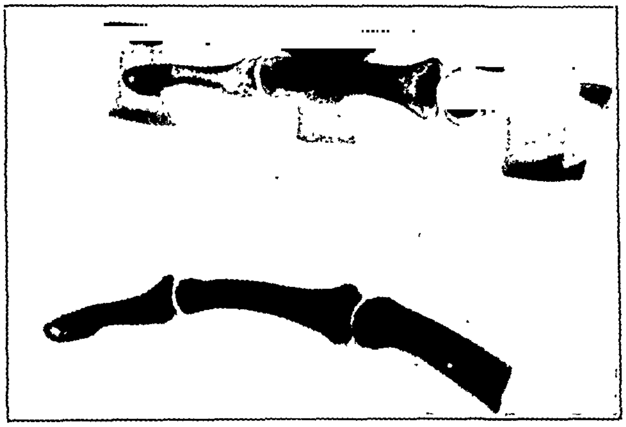
Fig. 5.—Finger with and without splint.

7 West Madison Street.

RECURRENT CARCINOMA OF BREAST, WITH ROENTGEN-RAY FIBROSIS *

HAROLD SWANBERG, M.D., QUINCY, ILL.

Mrs. B., aged 48, referred to me, June 8, 1920, by the Mayo Clinic, for postoperative roentgen-ray therapy for carcinoma of the breast, had not had any serious previous illness, except diphtheria when a child. Her general health had always been good. She had no children. In October, 1918, she noted a small lump in the right breast, which was about the size of a quarter and was not associated with any pain. She immediately consulted a physician, and two days later had the whole breast removed, but did not have any of the axillary glands dissected, for a radical operation was not thought necessary and was not contemplated unless a pathologic examination revealed malignancy. Sections made from the growth removed were reported nonmalignant. In March, 1920, she noticed a small nodule in the skin of the right axilla. This was removed and found to be malignant. She then went to the Mayo Clinic, where a radical breast amputation was done, April 12. What the Mayo Clinic thought of the case can be judged by the following extracts from a letter received May 3, 1920:

"Mrs. B. came to us, April 7, with a recurring carcinoma of the right axilla following amputation of the breast elsewhere in October, 1918. She was operated on here, April 12, at which time Drs. C. H. Mayo and Pemberton excised the scar of the old breast amputation, including all of the pectoralis minor and all except the clavicular attachment of the pectoralis major, and dissected out the nodes in the right axilla, which were extensively involved. The junction of the sternum and the first rib on the right side was nodular and slightly enlarged; the tissue around this point was adherent but was hard and bonelike, and no specimen could be removed. It is possible that this is bony metastatic malignancy.

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1. Wilson and Cochrane: Fractures and Dislocations, 1925, p. 319.
2. Stern: Am. J. Orthop. Surg. **6**: 484 and 518, 1908-1909.

* Read before the Central Illinois Radiological Society, Quincy, Ill., May 19, 1925.

"She received one roentgen-ray treatment here, April 26, and as she expects to visit in this vicinity for some time she will probably receive her second treatment here also. On her return home we have advised her to consult you for further treatments, although the ultimate prognosis is most unfavorable."

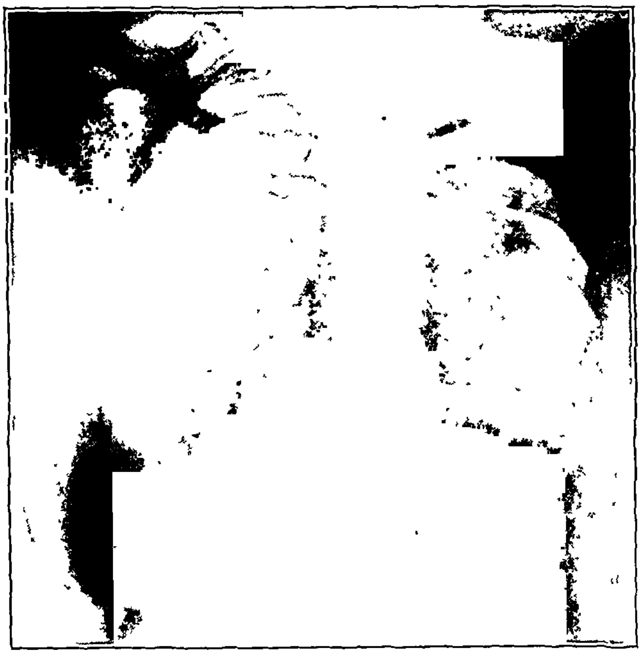


Fig. 1.—Condition of chest, Sept. 22, 1922.

After having several series of roentgen-ray treatments at the Mayo Clinic, the patient reported to me, June 8, 1920, for postoperative roentgen-ray therapy. A course of treatment was administered and repeated in July, September, December and the following March and June. The treatment consisted of the usual one that roentgenologists were administering at that time. It consisted of exposures of multiple small skin areas, a 9½ inch gap, 5 milliampere current and 7 inch skin distance being used, with 4 mm. of aluminum and a piece of sole leather as filters. The time factor averaged about eight minutes. Later the filter was increased to 5 mm. of aluminum and the distance to 8 inches. While no roentgenographic examination of the chest was made at first, several fluoroscopic examinations were made, and all were negative. As the result of the roentgen-ray treatment, the patient experienced some very severe skin reactions. In fact, they were so marked as to give me considerable concern, for I felt that the patient was unduly susceptible to the rays. On one occasion a distinct skin reaction appeared on the posterior section of the chest a day after several treatments had been administered on the anterior surface. Jan. 4, 1922, I felt that enough radiation had been administered, but further correspondence with the Mayo Clinic advised me to continue to give a series of treatments every three or four months; therefore, an additional series of treatments was administered in January and May, 1922. These series consisted of two large areas of exposure, anteriorly and posteriorly over the right chest and axilla, with a 10½ inch gap, 5 milliamperes, 12 inch skin distance, and 6.5 mm. aluminum and a piece of sole leather as filters, with fifteen minutes time for each area. About April, 1922, the patient developed a cough, which was dry. She had no dyspnea or pain. The cough lasted all summer and did not disappear until about September. During this period, however, she was feeling fine and was steadily gaining in weight. September 22, the first roentgenograms were made, followed by an additional examination, December 29, and a third examination in May, 1925. The date of the last roentgen-ray treatment was May 23, 1922.

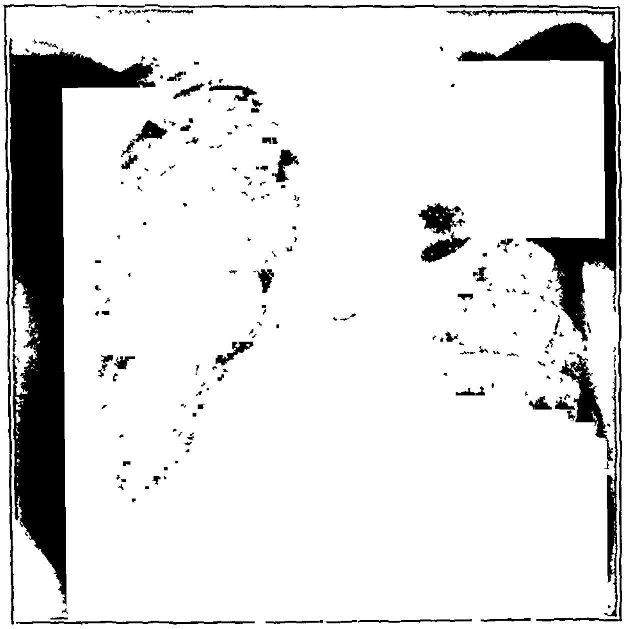


Fig. 2.—Condition of chest, Dec. 29, 1922.

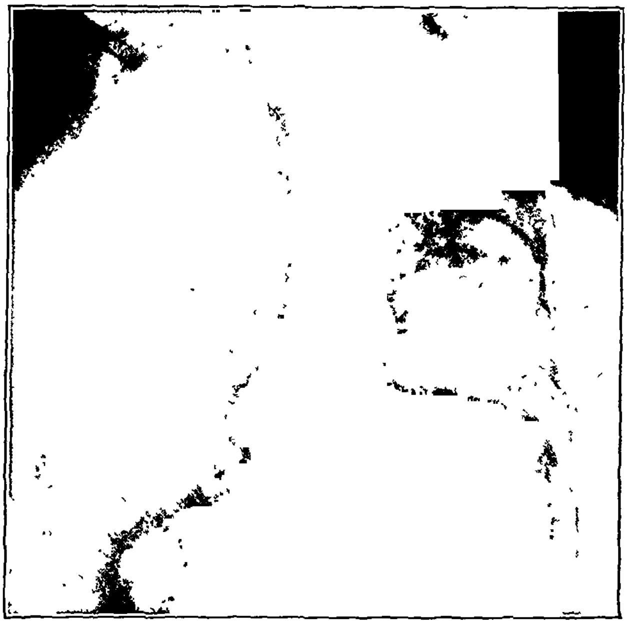


Fig. 3.—Condition of chest, May 16, 1925.

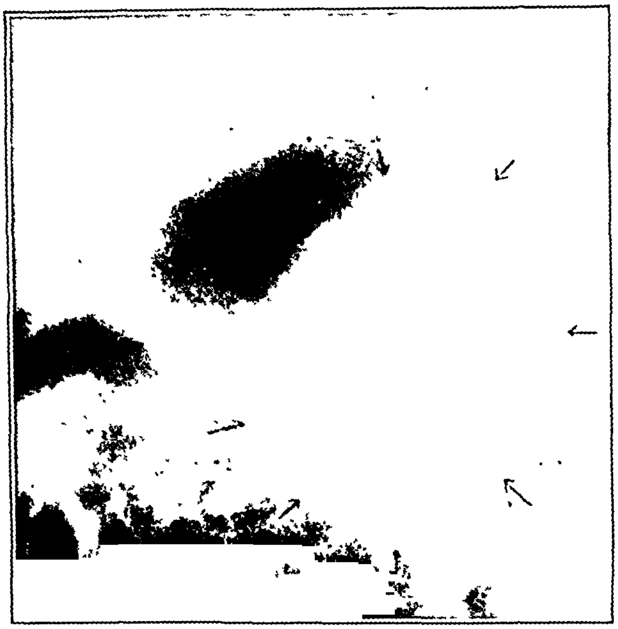
The roentgenograms clearly show a marked fibrosis present in the right chest. In fact, practically no lung tissue is apparent in the upper half of the right chest at the last examination. The diaphragm is elevated on this side; the ribs are more oblique, and a distinct scoliosis is present. The left lung presents a distinct compensatory emphysema, the only portion of the right lung that is aerated being a small part at the base. The films also demonstrate that the condition is not clearing up; in fact, the density was more marked at the last examination. Clinically, however, the patient enjoys excellent health and the lung fibrosis apparently gives her no concern. The cough has disappeared, and there is no dyspnea or pain. A very marked telangiectasis is present nearly all over the chest, but there is no clinical evidence of any recurrence of the original growth. Needless to say, the patient is extremely grateful in view of the grave prognosis originally made.

731 Hampshire Street.

TUMOR OF THE BODY OF THE PANCREAS*

Jacob Buckstein, M.D., New York
Consultant in Gastro-Enterology, U. S. Veterans' Bureau; Assistant Roentgenologist, Bellevue Hospital (in Charge of Gastro-Intestinal Roentgenology); Assistant Attending Physician, New York Polyclinic Medical School and Hospital

The accurate clinical diagnosis of tumor of the body of the pancreas is sufficiently difficult to warrant the report of clear evidence on which such a diagnosis may be based. This evidence is roentgenographic. As noted in the accompanying roentgenogram, the stomach, in addition to being displaced upward, shows a smooth crescentic defect involving the greater curvature. There is also downward displacement of the small intestine. On this indirect evidence, a diagnosis of tumor of the body of the pancreas was made. This was verified on surgical exploration by Dr. Arthur M. Wright, visiting surgeon to Bellevue Hospital. The tumor was a large pancreatic cyst.



Tumor of the body of the pancreas, indicated by arrows.

PRIMARY TULAREMIA OF THE EYE

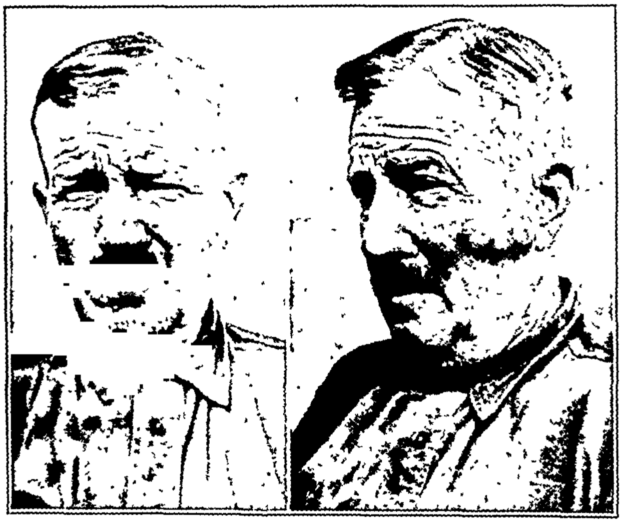
Malcolm C. Pfunder, M.D., Miles City, Mont.

The paucity of reported cases of tularemia with the primary infection in the eye makes it seem desirable to add one more to the four that have been reported by Vail, Sattler and Lamb of Cincinnati, and Martin[1] of Phoenix, Ariz.

REPORT OF CASE

W. C. F., aged 63, a farmer, who consulted me, April 11, 1925, noticed several wood ticks on the horses while harnessing his team, April 6. He removed these with his fingers, and while so doing a foreign body was blown into his left eye; he removed this with his finger. April 8, what he described as a "pimple" appeared on the conjunctiva of the lower lid of the left eye, and a marked swelling appeared just in front of the left ear. April 11, when he appeared for treatment, there was tremendous swelling extending from the superciliary region to the upper lip, and backward to the ear, the lids being so swollen that the patient was unable to open the eye. The bulbar conjunctiva was so swollen that it hung downward from above and extended upward from below so that the cornea was seen only through a slit 3 mm. wide. On the palpebral conjunctiva of the lower lid there were two small ulcers about 2 mm. in diameter. Smears made from the conjunctiva showed many pus cells but no organisms. The temperature was 101 F. when first observed; no white blood cell count was done. April 14, the chemosis became so marked that the cornea became "steamy" in appearance. The patient was then hospitalized, and continuous hot applications were used on the eye. Under this treatment the swelling about the eye diminished considerably, and the cornea became more normal in appearance, but the bulbar conjunctiva remained markedly swollen. As the edema of the left side of the face disappeared a ridge, extremely hard and about 2 cm. high became visible, extending from the outer canthus to the preauricular lymph gland. This gland meanwhile had continued to enlarge until it was as large as a hen's egg and very hard. The eye continued to improve, and, April 24, the patient went home against my advice. The right eye remained entirely normal.

April 25, the article by Francis[2] appeared; and, seeing a similarity between this case and those reported from Cincinnati, I drove to the patient's home, 60 miles away, to observe his surroundings and to obtain a specimen of blood from an agglutination test. From the window of the house a view could be obtained of a long, gentle slope on which many small, white spots could be seen. These proved to be the bodies of rabbits of the so-called "Jack" variety, all dead from natural causes. It is interesting to observe in this connection that people who have lived a long time in Montana, those who like to be called "old timers," all tell about a periodic epizootic among the rabbits, which appears about once in seven years and kills them by the thousand. In the light of modern knowledge, it seems quite probable that this epizootic is tularemia. A search was made in the sagebrush for the common Montana wood tick, *Dermacentor andersoni* Stiles, but unfortunately the day was cold and none were found, though the patient informed me that many could be found on warm days. A specimen of the patient's blood was drawn into a Keidel tube, and after returning to the office, I mailed the serum separated and diluted with an equal amount of neutral glycerin, to the Hygienic Laboratory of the U. S. Public Health Service, Washington, D. C. May 2, a wired report stated, that the serum was positive for tularemia in a dilution of 320.



Appearance of patient with primary tularemia of left eye with secondary involvement of preauricular lymph gland, forty days after onset of illness.

May 18, I again visited the patient. The eye was considerably improved, though there was still considerable chemosis. The preauricular lymph gland was even larger than before and had begun to soften in three areas, giving a distinct sense of fluctuation. Photographs showing the enlarged gland and the thickening along the course of the lymphatics, from the eye to the preauricular gland, were taken on the occasion of this visit, forty days after the onset of the disease. At this time the patient's temperature was 99.6 F.

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* From the Radiographic Department, Bellevue Hospital, Dr. I. S. Hirsh, director.

[1] Martin, Ancil: Tularemia Infection of Conjunctiva (Case Report), Southwest. Med., June, 1925.

[2] Francis, Edward: Tularemia, J. A. M. A. 84, 1243 (April 25) 1925.

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SATURDAY, OCTOBER 3, 1925

LIVER FUNCTION TESTS

The proposal to employ the quantitative measurement of urobilin, or its precursor urobilinogen, in the urine as an aid to diagnosis is not a new one. Urobilinogen is almost invariably present in the urine of man. Urobilin rarely, if ever, appears in the freshly voided urine; but it can readily be formed from its antecedent, so that the two closely related substances may be regarded as having a common history and significance. Fortunately, there are fairly satisfactory methods for the quantitative estimation of these pigmentary compounds. Their application has shown that large variations occur in the output of urobilinogen in the urine; and it has been the study of these that has raised the question of their possible diagnostic significance. The literature of the subject reveals an alternation of enthusiasm and doubt. Not a little of the uncertainty is attributable to the conflict of opinion regarding the genesis of the urobilinogen.[1] Most writers have followed the leadership of Friedrich Müller in attributing to urobilinogen an enterogenous origin. According to this conception, bilirubin, entering the intestine, undergoes gradual changes and eventually becomes transformed, through bacterial changes in the intestine, into urobilinogen. Micro-organisms are thus made to play a part in the genesis of the compound. The belief that urobilinogen may be formed in the kidney, through reductive processes occurring in that organ, appears to have been definitely disproved. The same could not be said regarding other nonenterogenous theories until recently.[1] If further evidence were needed in substantiation of the intestinal origin of urobilinogen, it could be found in the observations of Wallace and Diamond[2] of New York. They show, through experiments on animals, that in exclusion of bile from the intestinal canal by ligation and excision of the common duct, urobilinogen does not appear in the urine, even though the liver may be severely damaged. When, however, the flow of bile is reestablished by anastomosis between the gallbladder and the duodenum, or when bile is administered by mouth, urobilinogen again makes its appearance. The finding of small quantities of the substance in the intestinal canal after occlusion of the common duct is easily explained by the demonstrated excretion of bilirubin from the general circulation directly through the intestine, where the bile pigment becomes converted into urobilinogen through the subsequent bacterial transformations.

Until the opponents of the enterogenous theory can marshal more convincing evidence, it may be accepted as a working hypothesis. Experimentally, it has been found by Wallace and Diamond that in parenchymatous changes of the liver there occurs a marked increase in the urinary output of urobilinogen. If this means, as we may properly suppose, that the reabsorbed urobilinogen is not properly mobilized by the damaged liver and hence is eliminated from the blood by the kidneys in greater than usual amounts, the increased output truly is an indication of hepatic disorder. In harmony with this, it has been observed that the pathologic conditions in which urobilinogen is eliminated in excessive amounts can be classified in two main groups. One of these comprises diseases of the liver and biliary tracts—conditions showing acute and subacute hepatic changes or exacerbations associated with chronic processes. In the course of the slowly progressive chronic liver lesion, the output of large amounts of urobilinogen is said not to be constant. This is probably attributable to the ability of the organ to perform its normal metabolic function by compensatory growth of new liver tissue. The other group of diseases characterized by large urobilinogen output comprises hemolytic disturbances in which the outcome is due to the increase in the formation of bile pigment and a consequent relative insufficiency of the liver.

Facts such as the foregoing represent the possible basis for the choice of the "urobilinogen test" in the interpretation of liver disorders. The inevitable limitations of such aids to diagnosis should be frankly recognized. As Wallace and Diamond point out, any functional test designed to measure liver abnormality must be limited in its application and interpreted with great caution in terms of liver function. In any disease of the liver, they add, it is unlikely that all functions are deranged or at least equally involved; and, furthermore, there is no known single test that measures hepatic function as a whole. Bearing these shortcomings in mind, the New York clinicians advocate the use of the urobilinogen test as a routine laboratory measure in all urine examinations. We are assured that in icterus or in latent icterus, in hepatic disorders, in the anemias, in malaria, in infections, in malignancies and in intoxications it will supply an important adjuvant in the routine diagnosis, and will often aid in the interpretation of intricate and obscure clinical conditions.

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[1] The Origin of Urobilin, editorial, J. A. M. A. 85:518 (Aug. 15) 1925.

[2] Wallace, G. B., and Diamond, J. S.: The Significance of Urobilinogen in the Urine as a Test for Liver Function, with a Description of a Simple Quantitative Method for Its Estimation, Arch. Int. Med. 35:698 (June) 1925.

Thus, the constant presence of urobilinogen in catarrhal jaundice, and its total absence in mechanical icterus, such as is encountered in carcinoma of the head of the pancreas and of the biliary tract, forms a marked distinguishing diagnostic feature between the benign forms of jaundice and those due to malignant causes. The urobilinogen test does not always coincide in its character with the recently much vaunted test with phenoltetrachlorphthalein. Wallace and Diamond remind us, in this connection, that retention of the dye does not necessarily indicate a deficiency in the performance of the normal metabolic function of the liver, but merely points to a lessened capacity of this organ to eliminate foreign substances. The newer technic for the urobilinogen test brings it within the scope of any clinical laboratory.

CHEMICAL WARFARE

"The pacifists," said General Fries[1] in a recent address, "are the fundamentalists of international relations. They won't believe half what they see, nor anything they hear that is based on history." Beginning with Cain's destruction of Abel by the use of a club, warfare has progressed through the Greek phalanx, the Roman legion, the spear, the bow and arrow, the battle ax, the sword and armor of steel to cavalry, to gunpowder and explosives, to "tanks," aeroplanes and the so-called war gases. Each of these innovations was met with cries of horror by ardent pacifists who felt that man's inhumanity to man was becoming quite too inhumane.

As indicated by General Fries, nations never hesitate in times of war to use any weapons for offense or any methods of defense that science or ingenuity can provide. The United States, on the advice of John Hay and Admiral Mahan, refused to sign the Hague agreement on war gases. Hay realized that violation by a single nation rendered such an agreement nugatory. And when Germany began the use of gas in the World War, all other nations quickly followed.

Those most familiar with the actions and properties of war gases contend that their use is more humane than that of explosives. While gas produced many casualties in the war, records of the Surgeon General's Office indicate fatalities only about one twelfth of those resulting from wound-producing agencies.[2] The argument is made that once the use of such methods is conceded, science will go on to more and more terrific weapons. To this the chemists answer, as does Haldane[3] in his notable essay, "Chemistry and Peace," that we have apparently reached our limit because more powerful explosives would be as dangerous to the users as to those against whom they might be employed. And it must be remembered that when more efficacious methods are discovered, sooner or later some nation, fighting a war which it has convinced itself is a righteous war, will use that method. Has there ever been recorded a conflict in which each contending nation did not feel that it fought on the side of truth and morality and righteousness?

Haldane is convinced also that it is unlikely that more poisonous gases will be found than those we now have, and that the respirators used in gas defense are adequate in protection. Far more probable, he believes, is the development of skin irritants more unpleasant than mustard gas. The whole argument of the great British chemist is not for war or for chemical methods of warfare, but for increasing study and knowledge of chemical methods and for the best application of that knowledge for the good of man. With this argument for preparedness and research, none can wisely disagree.

ANHYDREMIC ACIDOSIS

The treacherous features of that somewhat insidious entity known as anhydremia have begun to receive more serious consideration as the frequent occurrence of the condition is becoming recognized.[1] In poisoning with war gases, the concentration of the blood develops as a significant symptom. Influenza and the attendant pneumonias have furnished illustrations of its consequences. A critical point in the management of extensive superficial burns arises when the circulating fluid concentrates. Probably the most frequent occurrence of anhydremia is in infancy when diarrhea and vomiting contribute to the retrenchment of the circulation in fluid. The manifestations themselves have been fairly well recognized; the relief brought by the therapy of fluid replacement is readily understood; but the more intricate features of the dehydration that engender severe symptoms are all too little understood.

Fundamental among them doubtless is the necessarily impaired circulation that must, in not a few instances, lead to impoverishment of the tissues in oxygen, just as severe hemorrhage may. One consequence Clausen[2] has clearly demonstrated to be an acidosis due in large measure to lactic acid. The latter is regularly formed in the course of muscular contraction, being removed during the period of rest by local oxidation, by resynthesis to some more complex tissue component, such as glycogen, or by transport to other metabolizing organs. The quantity in actual circulation is minimal, and little is eliminated in the excreta. As Clausen points out, under normal conditions of activity, circulation and oxygenation, the removal of lactic acid from

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[1] Fries, Amos: Evolution in the Army, an address before the Chemical Warfare Association Meeting, Chicago, Sept. 24, 1925.

[2] Vedder, E. B.: The Medical Aspects of Chemical Warfare, Book Notices, this issue, p. 1083.

[3] Haldane, J. B. S.: Chemistry and Peace, Atlantic Monthly **135**: 1 (Jan.) 1925.

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[1] Diarrhea and Anhydremia in Infancy, editorial, J. A. M. A. **76**: 794 (March 19) 1921; Anhydremia and Fever, ibid. **79**: 218 (July 15) 1922

[2] Clausen, S. W.: Anhydremic Acidosis Due to Lactic Acid, Am. J. Dis. Child. **29**: 761 (June) 1925.

the seats of its origin is so rapid that the alkali reserve of the body as a whole remains practically unaffected. Whenever the circulation or the processes of oxidation become insufficient, the rate of removal of lactic acid will be less than its rate of production, so that the concentration in the blood will rise, and the alkali reserve of the tissues (including the blood plasma) will fall. As soon as the rate of production of lactic acid exceeds the rate of its removal by even the normal mechanism, lactic acid acidosis may result.

This happens, as Clausen demonstrated, in children in cases of cardiac decomposition for obvious reasons. With improvement of the circulation, the lactic acid promptly disappears from the blood. It has now been observed in the anhydremia so characteristic of "alimentary intoxication," lactic acid joining with retained acid phosphate and perhaps other organic acids to provoke the lowering of the alkali reserve—the true acidosis. It is a significant fact that ketosis (in which beta-hydroxybutyric and aceto-acetic acids arise) is not conspicuous in cases of lactic acid acidosis. The acidosis due to the ketone substances is best relieved by glucose and insulin, which overcome the carbohydrate starvation that induces it. Lactic acid acidosis is adequately relieved by treatment of the underlying circulatory condition. Fluid to overcome the anhydremia is the foremost requisite. Alkalis may be a menace, leading to edema or tetany through alkalosis. Intravenous or intraperitoneal infusions of replacement fluid may be life-saving.

THE AMERICAN PHYSICIAN IN FACT AND IN FICTION

Criticism of the medical profession is, in some places, a favorite "indoor sport." On the one hand, the physician may be charged with remaining aloof from public affairs and his share of responsibility for the civic welfare of his fellow men; in another quarter, he may be assailed for undue intervention and for interference with the much vaunted "personal liberties" of his compatriots.

The critics are wont to forget that the art of medicine and the practitioner of any generation represent the outcome of evolutionary changes. From the earliest times, medicine has been a peculiar blend of superstition, empiricism and "that kind of sagacious observation which is the stuff out of which ultimately science is made." In the New World there came a demand for physicians long before there existed facilities for their proper training or means for their proper support. Only in comparatively recent times have the hospital and the university become adequately available in America for training in medicine. Changes in our educational system have naturally not progressed far in advance of the social system and novel economic conditions that this country has presented.

Perhaps a better realization of the unusual environment in which medicine was forced to develop in America from colonial times until quite recently would soften the asperities of the present day critic. The history of medicine in America with its apprenticeship system and the lack of the continental type of education may at any rate serve to explain, if it does not excuse, some of the "crudities" of the earlier days. In discussing the effects of the rapid expansion of population over an enormous territory, Flexner[1] has presented a vivid picture of the consequences on the medical profession. The inevitable happened. Loose and shifting bands of practicing physicians, calling themselves a faculty, tried to impart, chiefly by lectures, to heterogeneous, uneducated groups of students the empiric knowledge—sound and unsound—which they themselves possessed. First and last, Flexner states, American towns have produced more than 400 such medical schools. The teaching of medicine on these terms was directly, in cash, and indirectly, in prestige, a profitable business. In time the medical profession—to its credit be it said—undertook itself to set its own house in order, and with such marked success that schools of this extreme type have within the last decade practically disappeared.

The critic and the reformer are by no means ready, however, to let bygones be bygones. Thus, Flexner remarks: "The medical profession now knows better; but large sections of the people have not yet unlearned the bad lesson they were then taught; so that medical sectarians employing a technic compounded of illusive promises, bragging and advertising operate profitably on a scale that would have amazed, perhaps even shocked, the regular profession in the heyday of proprietary medical education." Amid such circumstances it is refreshing to read a worth-while tribute to the country doctor, such as the late Vice President Thomas R. Marshall has published in his "Recollections"[2] regarding his father.

> I think, if service is to be the true mark of greatness in a people, all these other wonders of a wondrous age and state must pale into insignificance beside the service and sacrifice of the country doctor. Who now remembers the conditions under which he sought to minister to minds and bodies diseased? Who now, by any stretch of the imagination, can bring to view the awful roads, the inhospitable houses that were called homes, the lack of furnaces, bathrooms, hot water, electricity, gas; mud everywhere; cracks in the houses everywhere; children waking in the morning with their blankets covered with snow; huge fireplaces where you roasted on one side and froze on the other? And add to it all a malarial climate. Chills and fever—fever and chills. Day in and day out, night in and night out, storm and sunshine, the country doctor went his rounds.

Here is a heartfelt appreciation of a real American physician. Who shall deny that he was the prototype of many of the pioneers of our profession in the New World?

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[1] Flexner, Abraham: Medical Education, New York, the Macmillan Company, 1925.

[2] These have appeared serially in the New York Times, September, 1925.

Current Comment

SINGLE INJECTION METHOD OF VACCINATING DOGS AGAINST RABIES

Japanese investigators, in 1921, found it possible to immunize dogs against rabies by a single subcutaneous injection of glycerinated fixed virus that had been attenuated by the addition of phenol (carbolic acid), and their work was confirmed[1] in this country. It appears now, from more recent investigation,[2] that the single injection vaccine does not protect dogs against a certain strain of street virus. In response to many inquiries, the U. S. Bureau of Animal Industry conducted experiments on dogs, using single injection vaccine made from the strain of fixed virus which originated in the Pasteur Institute of Paris, and from which commercial vaccines in this country are said to be made. The dogs were injected with different strains of street virus by the intra-ocular route. The vaccine afforded distinct protection against two different strains of street virus, and twelve among the sixteen dogs thus inoculated survived. Against a still different strain of street virus, designated B. A. I. 474, there was practically no protection afforded and only six among the thirty dogs inoculated survived. These experiments indicate the existence in this country of more than one strain of rabies street virus. Apparently there is a strain against which the single injection vaccine affords little protection; if this observation is confirmed, a vaccine that immunizes against B. A. I. 474 virus as well as against the strain heretofore encountered will be required.

THE NEED OF CALCIUM

Much has been written of late regarding the importance of appropriate fat-soluble vitamin in the metabolism of calcium in the body. Recent experimental studies on rickets have shown in striking manner how the addition of surprisingly small amounts of such sources of the vitamin in question as cod liver oil, or of far smaller quantities of potent concentrates from cod liver oil, promotes the successful deposition of lime in the bones under dietary conditions that lead to serious osseous defects if no remedial factor is furnished. Sunlight and suitable artificial irradiation also may act to facilitate the retention of calcium under certain otherwise unfavorable conditions. Amid our enthusiasm for these discoveries we are liable, however, to overlook the fact that disturbances in the mineral metabolism may be due to a deficiency of the mineral element in question quite as well as to a lack of the factor aiding mineral assimilation. This has been emphasized in a striking way by recent animal experiments of Sherman and MacLeod[3] of Columbia University. They have shown that under certain conditions of what might be termed suboptimal nutrition—conditions such as are presumably encountered in human experience—a sufficiently liberal allowance of calcium in the food is of prime importance to the optimal storage of calcium, for animals may be able to grow on diets on which the resulting calcium content of the body falls below the normal for their weight and age. In such cases, supplements of calcium in suitable forms, rather than fat-soluble vitamins, may be the determining factor in enriching the calcium depots of the organism so that they approach optimal conditions. Animals that receive little calcium in their diets lose calcium from their bodies. The drainage that pregnancy and lactation may bring about in respect to this element is shown by the lowering of the percentage of calcium in the body as the result of bearing and suckling young. Hammett[4] believes that there are sex-specific differences in the course of differential development and that they can be traced to gonadal influences. The relation of deposition of inorganic matter to bone growth by increments in organic matter and water, he finds, is different in the male than in the female. While in the one sex there is an apparent uniformity in type of growth impulse with age, in the other some factor exerts an influence on growth by ossification independently of the general stimulus to growth by increments of organic matter and water. In other words, there is apparently an independent factor for ossification in the female which is not exhibited in the male. In both sexes, however, apparently "normal" nutrition may be far from optimal when the supply of calcium is not itself optimal. Such conditions of suboptimal calcium storage are not easily detected except by elaborate analytic investigation not always possible in man. The lesson is clear: The calcium supply should be measured with liberality wherever doubt exists. Growth, pregnancy and lactation represent conditions of unusual demand that the body struggles to satisfy from one source or another. They should not be permitted to develop a hidden weakness in the organism.

GROWTH IN MENTAL MEDICINE

During the century ending with 1920, some 37,981,462 immigrants arrived in the United States, almost 70 per cent. of them in the last forty years. In these four decades, the number of persons in public institutions for the treatment of mental disease in the United States increased almost 600 per cent., or, according to Treadway,[5] from 40,942 to 232,682. The obvious conclusion is to trace a direct relation between the enormous increase in immigration and the increase in the number of patients in mental hospitals. In 1920, Pollock and Furbish found that 33 per cent. of the first admissions in seventy-one state hospitals for mental disease were foreign born patients. Of all white persons admitted to public institutions for the insane in 1910, 25.5 per cent. were foreign born. In 1920 there were 13,920,692 foreign born persons in continental United States. Less than half of these were naturalized and less than one in ten had declared their intention of becoming citizens. Our immigration laws previous to 1920, therefore, permitted an influx of immigrants who did not intend to become citizens and of many who were mentally unstable. Immigration was, of course, only one large factor filling up our asylums. While the new immigration law of 1924 may greatly reduce the rate of admissions to mental hospitals, another preventive measure, the mental hygiene movement, has become widespread, and various scientific societies have been organized to study mental problems. In his presidential address before the American Psychiatric Association, Dr. William A. White [6] reviewed in part the last thirty years of mental medicine and made a number of recommendations. He advocated that the six separate organizations now especially concerned in mental medicine unite and establish one strong national organization with permanent headquarters that would function every day in the year. The proposal is timely. Closer cooperation is needed, if for no other reason than to keep the control of the mental hygiene movement among those who know most about mental medicine.

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[1] Prophylactic Vaccination of Dogs Against Rabies, Current Comment, J. A. M. A. **78**: 1898 (June 17) 1922.

[2] Schoening, H. W.: J. Agric. Res. **30**: 431 (March 1) 1925.

[3] Sherman, H. C., and MacLeod, F. L.: The Calcium Content of the Body in Relation to Age, Growth and Food, J. Biol. Chem. **64**: 429 (June) 1925.

[4] Hammett, F. S.: A Biochemical Study of Bone Growth, I, Changes in the Ash, Organic Matter, and Water During Growth (Mus Norvegicus-Albinus), J. Biol. Chem. **64**: 409 (June) 1925.

[5] Treadway, W. L.: Mental Hygiene, with Special Reference to the Migration of People, Pub. Health Bull. 148, U. S. P. H. S., 1925.

THE ITCH

Of all of the diseases that attack mankind, none is so humiliating both in its appearance and in its contempt for caste or class, and none so awkward in its results, as that commonly called the itch. No less a figure than Napoleon I suffered with this condition, and reports are current of its spread through entire armies and social organizations. As pointed out by Dr. George Pernet,[7] the itch is undoubtedly an ancient disease. Celsus certainly recognized it and recommended sulphur mixed with liquid pitch as affording relief both to man and to cattle. It is interesting to follow Pernet in his analysis of the literature of the past and to find how close certain observers were toward determining the cause of the disease and yet failed to grasp the connection between the disease and the parasite. Moreover, the history of the discovery of pediculosis parallels that of scabies in this point. In the work of Paré and a number of other writers of his period there are references to a minute animal in connection with the itch, but these authors continue to account for the eruption by disturbances of body "humours." An English naturalist, Moufet, pointed out that the animalcule was to be found in the neighborhood of the pustules, and Hauptmann supplied a drawing of *Acarus scabiei* in 1657. Cestoni, an Italian apothecary, told in 1687 how women in Italy picked the acarus out of its burrow; and Richard Mead, who traveled in Italy during that period, taught that itch was a local disease due to a parasite and required local treatment. As is usual with medical knowledge, however, its dissemination occurred irregularly; whereas Dr. Samuel Johnson's dictionary, dated 1755, defined itch as "a cutaneous disease extremely contagious, which overspreads the body with small pustules filled with thin serum, and raised, as microscopes have discovered, by a small animal," medical writers as late as 1819 declined to accept the causal relationship. Pernet's historical investigation casts an interesting light on this disease, and affords important data for the psychologist interested in the thought processes of scientific investigation.

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[6] White, W. A.: Presidential Address, Am. J. Psych. **5**: 1 (July) 1925.

[7] Pernet, George: Historical Notes on Scabies, with Remarks on Palaeontology of the Acarus, Brit. J. Dermat. & Syph. **37**: 312 (July) 1925.

THE SYNTHESIS OF CHOLESTEROL IN THE BODY

Owing to the fact that it can be prepared in crystalline form, and hence presumably in a state of comparative purity, with great ease from a variety of body sources, cholesterol is early brought to the direct attention of the student of medicine. He can separate it in abundance, without skilled technic, from the brain and other nervous structures. It is readily isolated from gallstones, and thus impresses itself on the observer as having occasional pathogenic significance. Cholesterol occurs both free and as esters in the circulating blood. In fact, the compound is so widely distributed in the animal economy that it has been looked on as a never failing component of animal cells in general. Strange as it may seem to those who are impatient at the slow progress of scientific discovery, the real function of this ubiquitous higher alcohol remains to be determined. It is scarcely to be assumed that any seemingly omnipresent tissue component is devoid of some biologic use. Of late, new interest has been infused into considerations of cholesterol through the discovery that it may become "activated" by irradiation with ultraviolet rays so that it acquires antirachitic potency. Physiologists have long been curious to know whether cholesterol can be synthesized de novo in the body or whether it is one of those substances, like the vitamins, that must be supplied "ready made" with the diet. It might be supposed that an answer to the query could easily be secured by feeding experiments in growing animals subjected to a cholesterol-free diet. The difficulty heretofore has been that no regimen had been devised that was free from cholesterol and yet adequate for growth. The conventional sources of the indispensable fat-soluble vitamins all contain cholesterol, though it is well established that the latter as such does not function as a vitamin. Success in devising a sufficient cholesterol-free diet has recently been achieved, however, by Channon [1] at the Institute of Physiology, University College, London. Not only did growth on it proceed satisfactorily, but increment in size was attended with a proportionate increase in cholesterol in the body, so that the content of this substance was apparently well within normal ranges. The organism would thus seem capable of synthesizing cholesterol.

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[1] Channon, H. J.: Cholesterol Synthesis in the Animal Body, Biochem. J. **19**: 424, 1925.

Value of Personality.—The most valuable asset of the physician is personality. Its influence in sickness is mental healing, and it is of greatest value when trained and directed. The methods of employing such healing are infinite, for they vary with age and sex, with race and religion, and with circumstances.—Robertson, G. M.: *Lancet* **2**:214 (Aug. 1) 1925.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Frederick F. Russell, director of the International Health Board of the Rockefeller Foundation, New York, and Dr. Leslie L. Lumsden, U. S. Public Health Service, addressed the sixth annual conference of county health officers at Montgomery, September 8.

Changes at Andalusia.—Dr. Charles N. Leach, New York, who has been in charge of the bureau of epidemiology of the state department of health, has been placed in charge of the International Health Board Training Base for public health officers at Andalusia. Dr. Wilson G. Smillie, who has been in charge of the training base for about three years, has been transferred by the International Health Board to a post in New York.

ARIZONA

Dr. Krause Lectures.—Dr. Allen K. Krause, Baltimore, editor of the *American Review of Tuberculosis*, delivered three lectures on the pathology of tuberculosis before the Pima County Medical Society, Tucson, the last week in September, and addressed audiences at the University of Arizona and at the high school assembly hall. Dr. and Mrs. Krause also attended a number of social functions arranged by local physicians and their wives.

CALIFORNIA

Infantile Paralysis Epidemic.—The California State Board of Health reports that there were 581 cases of infantile paralysis in the state up to August 31, this year, as compared with 49 cases in the same period last year. There were 20 deaths in June and 35 in July. There were 205 cases reported in July and 200 in August.

Chirothesian Found Not Guilty.—M. T. Larkin, Los Angeles, who was arrested on a charge of practicing medicine without a license, was found not guilty after a three day jury trial. Albert Carter, special agent for the state board of medical examiners, cites this case as an exemple of the handicap of prosecuting cases with inexperienced prosecutors. The evidence showed that Larkin treated paralysis, tumors, rheumatism and kidney disease. Larkin contended he had the right to do such things in accordance with the tenets of the Chirothesian Church, of which he is a member.

CONNECTICUT

Health Exhibit at Fairs.—The state department of health reports that thousands of people have attended the health exhibits conducted by the state department of health at the county fairs throughout the state, and that they have all been given health leaflets published by the health department. The exhibit represented the activities of the whole department of health.

FLORIDA

Charged with Attempting to Bribe.—Governor Martin has issued an order, it is reported, directing Dr. William J. Buck, Jacksonville, president of the state board of medical examiners, to show cause why he should not be removed from office on a charge of soliciting a bribe of $1,000 for issuing a license to practice medicine.

Hospital News.—The Victoria Hospital property at Miami has been sold and plans have been made to improve the property by enlarging the hospital to 106 beds and the erection of a $700,000 hotel for convalescents who desire to be under medical care without entering a hospital.——Plant City recently authorized a bond issue for a $50,000 hospital building.

Personal.—Dr. John F. Bresnahan has been appointed superintendent of the Jackson Memorial Hospital, Miami. Dr. Bresnahan is a graduate of the University of Pennsylvania School of Medicine and in hospital administration at the Massachusetts General Hospital, also of the Field Medical School of the Army in which he served as major during the war.——Dr. Mark B. Herlong, health commissioner of Jacksonville, sailed for France, September 15, to represent Jacksonville at the International Congress of Cities. Dr. Herlong will then tour the continent to observe municipal activities.——Dr. Ernest C. Levy, formerly of Richmond, Va., assumed his duties as city health officer of Tampa, September 14.

IDAHO

Hospital News.—The Nazarene Sanatorium, Nampa, will conduct a campaign for funds for a new building in October. ——The hospital at Boise now being used by the Veterans' Bureau is being remodeled at a cost of about $20,000. At present there are 114 patients in the hospital.

State Medical Election.—At the annual meeting of the Idaho State Medical Association, Pocatello, September 3-5, Dr. Nathaniel R. Wallentine, Sandpoint, was elected president; Dr. Duncan L. Alexander, Twin Falls, vice president, and Dr. Joseph N. Davis, Kimberly, secretary-treasurer.

ILLINOIS

Hospital News.—The health department of Springfield has arranged to establish a municipal contagious disease hospital, which will be constructed and operated as a unit of St. John's Hospital.

New Tuberculosis Sanatorium.—With the construction of the new Madison County Tuberculosis Sanatorium nearing completion, the sanatorium board is looking about for a superintendent and general manager for the institution, a man thoroughly conversant with tuberculosis, able to manage an institution of 100 beds, a farm of 53 acres and the personnel that will be attached to the institution.

Society News.—Dr. Walter F. Seymour, for thirty-two years a medical missionary, addressed the Galesburg Medical Society at a dinner, September 15, on "The Problems and Pleasures of a Physician in China."——Dr. Evarts A. Graham, professor of surgery, Washington University School of Medicine, St. Louis, addressed the Madison County Medical Society at St. Anthony's Infirmary, Alton, October 2, on "The Treatment of Pulmonary Conditions by Surgical Means."

Mosquito Control Work.—The twelve most southern counties in Illinois are considered by the state department of health as the "malaria belt." While they represent only about 5 per cent. of the population of the state, they have about 60 per cent. of the total malaria. There was last year eighty deaths from malaria in Illinois; about forty-eight deaths, therefore, occurred in the twelve southern counties. There are three species of mosquitoes in certain regions of Illinois which transmit malaria: *Anopheles quadrimaculatus, Anopheles crucians* and *Anopheles punctipennis.* Mosquito control work was started by the state department of health in 1922 at Carbondale, and at present there are more than twelve cities conducting mosquito campaigns. The activities of communities in mosquito control this year has been greater than in all previous years. Communities engaged in mosquito campaigns of various kinds include Carbondale, Murphysboro, Belleville, West Frankfort, Gorham, Ravinia Park, Winnetka, Kenilworth, Glencoe, Evanston and Highland Park. The Chicago Sanitary District, the North Shore Sanitary District and several Cook County organizations cooperate in antimosquito work.

Chicago

Society News.—The regular meeting of the Chicago Society of Industrial Medicine and Surgery will be held at the Great Northern Hotel, October 5, at 8:30. Dr. Emile C. DuVal will speak on "Diathermy in the Treatment of Industrial Cases."

Another Swindler.—Information has been received that a man giving the name of Russell Palefano has called on physicians in Chicago presenting himself as a patient with venereal disease, paying for treatment by means of a large check and asking for the difference in cash. His check has turned out to be worthless.

Hospital News.—Dr. Frank Billings will lay the cornerstone of the Albert Billings Memorial Hospital at the University of Chicago, October 3, and Max Mason, Ph.D., president of the university, will preside at the ceremonies; Dr. Henry A. Christian, professor of medicine, Harvard University School of Medicine, Boston, will deliver an address.——The four-story building on Cambridge Avenue, formerly used by the Grant Hospital for a nurses' home, has been sold and will be remodeled for hotel purposes.

Anniversary of Chicago Surgical Society.—At the twenty-fifth anniversary dinner of the Chicago Surgical Society, October 2, Hotel Sherman, the speakers were charter members of the society. Dr. Edward Wyllys Andrews' subject was "Albert J. Ochsner—Our Colleague and Friend"; Dr. Weller Van Hook spoke on "The Advance in Surgery in Chicago During the Last Twenty-Five Years"; Dr. Lewis L. McArthur, "The Surgical Profession in Chicago in the Last Twenty-Five Years," and Dr. Arthur Dean Bevan, "The Teaching of Surgery in Chicago in the Last Twenty-Five Years." Among former eminent surgeons of Chicago who were charter members were Drs. Senn, Fenger, Murphy, Ochsner and John E. Owens.

KANSAS

Infantile Paralysis.—Three cases of infantile paralysis were reported near Cunningham, September 14.

Personal.—Dr. Arthur D. Gray has been appointed in charge of the new urologic clinic which was opened by the city health department at the city hall, Topeka, September 16.

Medical School Exhibit at Fair.—University of Kansas School of Medicine, Rosedale, arranged a display of 150 pathologic specimens from the school's museum for exhibition at the Free Fair at Topeka A staff of attendants from the medical school, comprising Drs. Harry R. Wahl, dean, and Ferdinand C Helwig of the faculty and others, were in charge of the exhibit. Among the specimens were tuberculosis of the lung, kidney disease, gallstones, heart disease and microscopic studies of cancer.

KENTUCKY

Personal.—Dr. Hervey B. Scott has been reappointed a member of the department of neurology and psychiatry at the City Hospital, Louisville.——Dr. Martin J. Sauter has been appointed a member of the board of health of Newport to succeed Dr. George Brown.——Dr. William A. Krieger, Newport, has been appointed health commissioner of that city, to succeed Dr. John Todd, resigned, who has been health officer for the last sixteen years. Dr. Todd's resignation becomes effective November 1.——Dr. Edward P. Guerrant, Winchester, has been appointed physician to the Kentucky Wesleyan College.

Smallpox Survey.—The state board of health investigated the reports of smallpox in ninety-five of the 120 counties in the state and found that there had been 1,700 cases in the fiscal year ending June 30, 1925, of which 150 were severe and eight fatal. The survey showed also that about 30 per cent. of the school children of the state had been successfully vaccinated against smallpox, the number of vaccinated ranging from 1 per cent. of the school children in some counties to about 100 per cent. in others. The code of health of Kentucky contains definite regulations which require vaccination as a prerequisite to attendance at school. The state board, September 11, therefore declared an emergency to exist and called on county and city boards of health and boards of education to enforce the vaccination laws as to the eligibility of unvaccinated children to attend school.

LOUISIANA

Appointments to Board of Health.—At the meeting of the council of Alexandria, September 8, a resolution was adopted providing for the appointment of a city board of health, and the following members were appointed: Drs. Joseph A. Packer, Leonard D. Gremillion, G. M. Graham Stafford, Mayor J. F. Foisy and Irvin McGinis.

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Personal.—Dr. Joseph O. Weilbaecher, New Orleans, has been appointed physician to the police department, to succeed Dr. Leonard C. Chamberlain.——Dr. Victor C. Smith has been appointed head of the department of ophthalmology at the new Southern Baptist Hospital, New Orleans.——H. W. Conner, Richmond, Va., has been appointed full-time sanitary inspector for St. James Parish.——Dr. Allen B. Jemison, Macon, Ga., newly appointed director of the health unit of DeSoto Parish, arrived in New Orleans, September 25, to assist the state department of health in maternity and infancy work for one month.——Dr. E. Aitken Segar, of the Imperial College, Port of Spain, Trinidad, is in Louisiana observing public health methods.

Record Enrolment at Tulane.—Tulane University of Louisiana School of Medicine, New Orleans, opened its annual session with the largest freshman class in years. The pressure for admission into the medical school was such, it is reported President Dinwiddie said, that several hundred students were refused admission. The following seventeen new members have been added to the faculty of the undergraduate school of medicine: James O. Foley, Ph.D., instructor in anatomy; Drs. John D. Humber, instructor in anatomy; Edmond L. Faust, instructor in clinical obstetrics; Arthur Caire, instructor in clinical obstetrics; Curtis H. Tyrone, instructor in clinical obstetrics; Emmett L. Irwin, instructor in clinical surgery; Rodger J. B. Hibbard, instructor in pathology and bacteriology; Stuart A. Wallace, instructor in pathology and bacteriology; Shirley Carlton Lyons, assistant in anatomy; Earl Z. Browne, assistant in medicine and in the laboratories of clinical medicine; Russell C. Pigford, assistant in medicine and in the laboratories of clinical medicine; Louis V. J. Lopez, assistant in clinical psychiatry; Euclid B. Gill, assistant in pediatrics; George L. Hardin, assistant in clinical ophthalmology; Frank L. Loria, assistant in clinical surgery; James L. Smith, assistant in pathology and bacteriology; Stella M. A. Leche, B.Sc., student assistant in biochemistry.

MARYLAND

Society News.—At the regular meeting of the Baltimore County Medical Association, September 16, at the Medical and Chirurgical Faculty Building, Baltimore, Dr. Edward A. Looper gave an illustrated lecture on "The Diagnosis and Treatment of Tuberculosis of the Larynx."

Dr. Halstead's Work to Be Published.—An edition of the complete works of Dr. William S. Halstead, late professor of surgery at Johns Hopkins, is under way, edited by Dr. Walter C. Burket, Evanston, Ill., in two volumes. As an introduction to the edition, a biographic sketch of Dr. Halstead is being written by Dr. William H. Welch, director, Johns Hopkins School of Public Health and Hygiene, who is the oldest living associate of Dr. Halstead. Dr. Halstead was associated with Johns Hopkins University from 1881 until his death, September, 1922.

Expansion of Johns Hopkins Hospital.—According to statements issued by the Johns Hopkins Half Century Committee, development extending over ten years and involving an expenditure of $13,000,000 is planned for the Johns Hopkins Hospital. The plan calls for additional endowment of the hospital and school for nurses, building and endowment of new medical and surgical clinics, an institute for the study and treatment of diseases of the nervous system, a convalescent branch of the hospital, a central medical library and a special endowment to aid persons of moderate means. The quarters of the medical and surgical wards have remained essentially the same since 1889, when the hospital was opened. A part of the quarters used by the nurses has been assigned to the Wilmer Institute; even prior to this change, many nurses had to live outside the hospital. Special work in nervous diseases is needed to supplement the work of the Henry Phipps Psychiatric Clinic. The Half Century Committee hopes to obtain in October from Baltimore $1,500,000 for the support of the university and the hospital. The most pressing need of the hospital is endowment for work for the sick children of Baltimore. Since almost all of the children cared for are from Baltimore, the hospital must depend primarily on Baltimore to support this work.

MASSACHUSETTS

Lectures on Mental Health of Children.—The Boston University School of Education announces a series of fifteen practical lectures on "Understanding the Child and His Needs," to be given on Tuesday evenings at 8 o'clock at 688 Boylston Street, Boston, beginning September 29. The course will be given in cooperation with the Massachusetts Society for Mental Hygiene and discussions will follow each lecture. Credit of one point will be given toward the degree of bachelor of science in education or the degree of master of education. In the second semester a course of lectures will be given on the "Physical Life of the Child."

MICHIGAN

Police and Fire Surgeons.—The annual meeting of the National Association of Police and Fire Surgeons will be held in Grand Rapids, October 6-7. City physician, Allison H. Edwards, is chairman of the local committee on arrangements. A subject which will receive attention at this meeting is the proposal to standardize the physical requirements of civil service employes, especially of policemen and firemen in large cities. Proposed standards will be submitted to this convention for definite action. There are about 150 members in this association which is now four years old. Previous conventions have been held in Philadelphia, Atlantic City and New York.

Society News.—Dr. William F. Wild, field director of the American Society for the Control of Cancer, addressed a public meeting under the auspices of the Wayne County Medical Society, Detroit, September 15, on cancer.——Dr. Hugh Cabot, dean and professor of surgery, University of Michigan Medical School, Ann Arbor, will address the Wayne County Medical Society, October 5, on "Diagnosis and Methods of Attack on Tumors of the Kidney."——Henry F. Vaughan, D.P.H., Detroit, city commissioner of health, addressed the East Side Physicians' Association, October 1, at the Whittier Hotel on "The Relationship of the Board of Health to the General Practitioner."

Heart Disease in Michigan.—The August *Bulletin* of the state department of health says that heart disease was the cause of 13.1 per cent. of all deaths in Michigan in 1924, a rate of 159.2 deaths per hundred thousand of population. A comparison of the rates for heart disease in Michigan and in the U. S. registration area as a whole for eight years ending with 1922 shows that the Michigan rate was continuously higher than that of the registration area. About 60 per cent. of the deaths from organic heart disease occur after the age of 65; the last census showed that 5.3 per cent. of the people of Michigan were at least 65 years of age, whereas in 1870 only 2.7 per cent. of the people had reached that age. The health department points out that in the last half century the population of the state has changed so that it has twice as many candidates for heart disease as formerly, and that the relatively slight increase in the rate is, therefore, no cause for apprehension.

New Whooping Cough Regulations.—The department of health of Detroit notes in its bulletin that there were seventy deaths from whooping cough in that city this year up to September 1 as compared with forty-six deaths in the same period last year. New regulations have therefore been adopted to control the whooping cough situation, one of which is that whooping cough clinics will be discontinued by the department of health; physicians of the health department will not send whooping cough patients to the department clinic for diagnosis and treatment but refer them whenever possible to private physicians or to the city physician. The isolation period for whooping cough is considered as four weeks from the date of the report of the disease. The patient and susceptible contacts during the period of isolation shall be confined to the premises which include the home and rear yard only, but susceptible contacts (these are considered children of preschool and grade school age who have not previously had whooping cough) may be transferred to the home of adult friends for observation during the period of isolation.

MISSISSIPPI

Personal.—Dr. John D. Spelman, medical superintendent of the Touro Infirmary, New Orleans, recently surveyed the Natchez Hospital, Natchez, for the purpose of making recommendations regarding standardization.——Dr. Charles P. Coogle has been elected officer in charge of the Leflore County health unit.

MISSOURI

Infantile Paralysis.—Since March 1 there had been reported forty-four cases of infantile paralysis in Kansas City and fourteen deaths. However, in the two weeks ending September 21 only one new case had been reported.

Society News.—Dr. Joseph P. Costello addressed the St. Louis Medical Society, September 22, on "Roentgen Ray of the Thymus in Infantile Eczema," and Dr. Willard Bartlett on "What Course to Pursue When Confronted by a Goiter Patient with a Second Surgical Lesion."——At the general meeting of the St. Louis Medical Society, September 29, Dr. Randall S. Tilles gave a lantern slide demonstration of "An Early Case of Hydatiform Mole." Dr. Joseph E. Stewart spoke on "Kohler's Disease of Tarsal Scaphoid."

Grand Jury Investigation of Diploma Mill Charges.—The Jackson County Grand Jury, sitting at Kansas City, will investigate the Missouri medical diploma mill scandal. When the grand jury convened, September 22, Judge Nelson E. Johnson gave instructions to indict persons found guilty of fraud in obtaining licenses or diplomas. The judge said, in part, "There have been many charges of late that men have received diplomas to practice medicine in this state who are not entitled to receive them, and that men have received licenses to practice medicine in this state who are not entitled to receive licenses. If these charges are true, it is hard to conceive of a greater crime, because into the hands of these men fall the woes and the ills of our citizens."

New State Board of Health.—Following his request for the resignation of all members of the state board of health, Governor Baker has appointed the following physicians members of the new board: Dr. William A. Clark, Jefferson City; Drs. James Stewart and Willard Bartlett, St. Louis; Dr. Herbert A. Breyfogle, Kansas City; Dr. Elmer T. McGaugh, Richmond; Dr. Herman S. Gove, Linn, and Dr. Homer L. Kerr, Crane. In his announcement, the governor stated that he desired Dr. William Clark to be elected president of the board and Dr. James Stewart, secretary, at the meeting of the board held in Jefferson City, September 23. Dr. Clark was formerly president of the state board of health from 1917 to 1921 and last year was president of the Missouri State Medical Association. The members of the old board who were reappointed to the new board of health are Drs. Stewart, Kerr and Gove.

MONTANA

Resolution on Medical Taxes.—At the last meeting of the Medical Association of Montana, Lewistown, resolutions were passed declaring unjust the war tax of $3 against physicians under the Harrison Narcotic Law, the tax on traveling expenses necessary for attendance at medical meetings and the tax on expense of postgraduate study.

NEW JERSEY

Chiropractor Convicted.—It is reported that John H. Conover, Jersey City, was sentenced, September 22, to three months in jail on a charge of practicing medicine without a license. This is said to be the third time that Conover has been convicted on similar charges.

NEW YORK

Sanatorium for Actors.—The National Vaudeville Artists, Inc., announced, September 23, the purchase of a 50-acre estate near Saranac Lake to be used as a sanatorium for patients which are supported by that organization. The buildings will be remodeled, it is reported, to make the institution available to all branches of the theatrical profession.

Society News.—The Westchester County Medical Society held its September meeting at the Grasslands Hospital, White Plains, and in addition to an inspection of this 500-bed hospital were addressed by Dr. Robert W. Gover, New York, on "Infantile Paralysis," followed by a report by Dr. Leo J. Schweiger of the resident staff, on eleven cases of this disease recently treated in this hospital.

Nurses Dismissed.—The forty-seventh graduate nurse was dismissed from duty at the Albany Hospital, Albany, September 13, it is reported, for conduct considered in violation of hospital regulations The board of governors announced new rules for nursing, August 8, which specified in part that nurses should not have a choice of day or night duty, of the class of patient, or whether they should care for one or more patients and the rate of pay was fixed in accordance with the number of patients cared for. The dismissals, it is reported, arose out of opposition to these rules.

Hospital Experiment with Mental Cases.—The report of the Winifred Masterson Burke Relief Foundation for 1923-1925 details work done in treating selected psychoneurotic patients by introducing them into the general group of patients at the convalescent home and in the general régime at the Burke Foundation A report on the progress of about 500 cases will be forthcoming. The foundation maintains a convalescent home at White Plains and other branch homes. The report the Grant Hospital for a nurses' home, has been sold and will be remodeled for hotel purposes.

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MARYLAND

Society News.—At the regular meeting of the Baltimore County Medical Association, September 16, at the Medical and Chirurgical Faculty Building, Baltimore, Dr. Edward A. Looper gave an illustrated lecture on "The Diagnosis and Treatment of Tuberculosis of the Larynx."

Dr. Halstead's Work to Be Published.—An edition of the complete works of Dr. William S. Halstead, late professor of surgery at Johns Hopkins, is under way, edited by Dr. Walter C. Burket, Evanston, Ill., in two volumes. As an introduction to the edition, a biographic sketch of Dr. Halstead is being written by Dr. William H. Welch, director, Johns Hopkins School of Public Health and Hygiene, who is the oldest living associate of Dr. Halstead. Dr. Halstead was associated with Johns Hopkins University from 1881 until his death, September, 1922.

Expansion of Johns Hopkins Hospital.—According to statements issued by the Johns Hopkins Half Century Committee, development extending over ten years and involving an expenditure of $13,000,000 is planned for the Johns Hopkins Hospital. The plan calls for additional endowment of the hospital and school for nurses, building and endowment of new medical and surgical clinics, an institute for the study and treatment of diseases of the nervous system, a convalescent branch of the hospital, a central medical library and a special endowment to aid persons of moderate means. The quarters of the medical and surgical wards have remained essentially the same since 1889, when the hospital was opened. A part of the quarters used by the nurses has been assigned to the Wilmer Institute; even prior to this change, many nurses had to live outside the hospital. Special work in nervous diseases is needed to supplement the work of the Henry Phipps Psychiatric Clinic. The Half Century Committee hopes to obtain in October from Baltimore $1,500,000 for the support of the university and the hospital. The most pressing need of the hospital is endowment for work for the sick children of Baltimore. Since almost all of the children cared for are from Baltimore, the hospital must depend primarily on Baltimore to support this work.

MASSACHUSETTS

Lectures on Mental Health of Children.—The Boston University School of Education announces a series of fifteen practical lectures on "Understanding the Child and His Needs," to be given on Tuesday evenings at 8 o'clock at 688 Boylston Street, Boston, beginning September 29. The course will be given in cooperation with the Massachusetts Society for Mental Hygiene and discussions will follow each lecture. Credit of one point will be given toward the degree of bachelor of science in education or the degree of master of education. In the second semester a course of lectures will be given on the "Physical Life of the Child."

MICHIGAN

Police and Fire Surgeons.—The annual meeting of the National Association of Police and Fire Surgeons will be held in Grand Rapids, October 6-7. City physician, Allison H. Edwards, is chairman of the local committee on arrangements. A subject which will receive attention at this meeting is the proposal to standardize the physical requirements of civil service employes, especially of policemen and firemen in large cities. Proposed standards will be submitted to this convention for definite action. There are about 150 members in this association which is now four years old. Previous conventions have been held in Philadelphia, Atlantic City and New York.

Society News.—Dr. William F. Wild, field director of the American Society for the Control of Cancer, addressed a public meeting under the auspices of the Wayne County Medical Society, Detroit, September 15, on cancer.——Dr. Hugh Cabot, dean and professor of surgery, University of Michigan Medical School, Ann Arbor, will address the Wayne County Medical Society, October 5, on "Diagnosis and Methods of Attack on Tumors of the Kidney."——Henry F. Vaughan, D.P.H., Detroit, city commissioner of health, addressed the East Side Physicians' Association, October 1, at the Whittier Hotel on "The Relationship of the Board of Health to the General Practitioner."

Heart Disease in Michigan.—The August *Bulletin* of the state department of health says that heart disease was the cause of 13.1 per cent. of all deaths in Michigan in 1924, a rate of 159.2 *deaths per hundred thousand of population.* A comparison of the rates for heart disease in Michigan and in the U. S. registration area as a whole for eight years ending with 1922 shows that the Michigan rate was continuously higher than that of the registration area. About 60 per cent. of the deaths from organic heart disease occur after the age of 65; the last census showed that 5.3 per cent. of the people of Michigan were at least 65 years of age, whereas in 1870 only 2.7 per cent. of the people had reached that age. The health department points out that in the last half century the population of the state has changed so that it has twice as many candidates for heart disease as formerly, and that the relatively slight increase in the rate is, therefore, no cause for apprehension.

New Whooping Cough Regulations.—The department of health of Detroit notes in its bulletin that there were seventy deaths from whooping cough in that city this year up to September 1 as compared with forty-six deaths in the same period last year. New regulations have therefore been adopted to control the whooping cough situation, one of which is that whooping cough clinics will be discontinued by the department of health; physicians of the health department will not send whooping cough patients to the department clinic for diagnosis and treatment but refer them whenever possible to private physicians or to the city physician. The isolation period for whooping cough is considered as four weeks from the date of the report of the disease. The patient and susceptible contacts during the period of isolation shall be confined to the premises which include the home and rear yard only, but susceptible contacts (these are considered children of preschool and grade school age who have not previously had whooping cough) may be transferred to the home of adult friends for observation during the period of isolation.

MISSISSIPPI

Personal.—Dr. John D. Spelman, medical superintendent of the Touro Infirmary, New Orleans, recently surveyed the Natchez Hospital, Natchez, for the purpose of making recommendations regarding standardization.——Dr. Charles P. Coogle has been elected officer in charge of the Leflore County health unit.

MISSOURI

Infantile Paralysis.—Since March 1 there had been reported forty-four cases of infantile paralysis in Kansas City and fourteen deaths. However, in the two weeks ending September 21 only one new case had been reported.

Society News.—Dr. Joseph P. Costello addressed the St. Louis Medical Society, September 22, on "Roentgen Ray of the Thymus in Infantile Eczema," and Dr. Willard Bartlett on "What Course to Pursue When Confronted by a Goiter Patient with a Second Surgical Lesion."——At the general meeting of the St. Louis Medical Society, September 29, Dr. Randall S. Tilles gave a lantern slide demonstration of "An Early Case of Hydatiform Mole." Dr. Joseph E. Stewart spoke on "Kohler's Disease of Tarsal Scaphoid."

Grand Jury Investigation of Diploma Mill Charges.—The Jackson County Grand Jury, sitting at Kansas City, will investigate the Missouri medical diploma mill scandal. When the grand jury convened, September 22, Judge Nelson E. Johnson gave instructions to indict persons found guilty of fraud in obtaining licenses or diplomas. The judge said, in part, "There have been many charges of late that men have received diplomas to practice medicine in this state who are not entitled to receive them, and that men have received licenses to practice medicine in this state who are not entitled to receive licenses. If these charges are true, it is hard to conceive of a greater crime, because into the hands of these men fall the woes and the ills of our citizens."

New State Board of Health.—Following his request for the resignation of all members of the state board of health, Governor Baker has appointed the following physicians members of the new board: Dr. William A. Clark, Jefferson City; Drs. James Stewart and Willard Bartlett, St. Louis; Dr. Herbert A. Breyfogle, Kansas City; Dr. Elmer T. McGaugh, Richmond; Dr. Herman S. Gove, Linn, and Dr. Homer L. Kerr, Crane. In his announcement, the governor stated that he desired Dr. William Clark to be elected president of the board and Dr. James Stewart, secretary, at the meeting of the board held in Jefferson City, September 23. Dr. Clark was formerly president of the state board of health from 1917 to 1921 and last year was president of the Missouri State Medical Association. The members of the old board who were reappointed to the new board of health are Drs. Stewart, Kerr and Gove.

MONTANA

Resolution on Medical Taxes.—At the last meeting of the Medical Association of Montana, Lewistown, resolutions were passed declaring unjust the war tax of $3 against physicians under the Harrison Narcotic Law, the tax on traveling expenses necessary for attendance at medical meetings and the tax on expense of postgraduate study.

NEW JERSEY

Chiropractor Convicted.—It is reported that John H. Conover, Jersey City, was sentenced, September 22, to three months in jail on a charge of practicing medicine without a license. This is said to be the third time that Conover has been convicted on similar charges.

NEW YORK

Sanatorium for Actors.—The National Vaudeville Artists, Inc., announced, September 23, the purchase of a 50-acre estate near Saranac Lake to be used as a sanatorium for patients which are supported by that organization. The buildings will be remodeled, it is reported, to make the institution available to all branches of the theatrical profession.

Society News.—The Westchester County Medical Society held its September meeting at the Grasslands Hospital, White Plains, and in addition to an inspection of this 500-bed hospital were addressed by Dr. Robert W. Gover, New York, on "Infantile Paralysis," followed by a report by Dr. Leo J. Schweiger of the resident staff, on eleven cases of this disease recently treated in this hospital.

Nurses Dismissed.—The forty-seventh graduate nurse was dismissed from duty at the Albany Hospital, Albany, September 13, it is reported, for conduct considered in violation of hospital regulations. The board of governors announced new rules for nursing, August 8, which specified in part that nurses should not have a choice of day or night duty, of the class of patient, or whether they should care for one or more patients and the rate of pay was fixed in accordance with the number of patients cared for. The dismissals, it is reported, arose out of opposition to these rules.

Hospital Experiment with Mental Cases.—The report of the Winifred Masterson Burke Relief Foundation for 1923-1925 details work done in treating selected psychoneurotic patients by introducing them into the general group of patients at the convalescent home and in the general régime at the Burke Foundation. A report on the progress of about 500 cases will be forthcoming. The foundation maintains a convalescent home at White Plains and other branch homes. The report shows, says the New York *Times,* that in all 49,154 patients have been treated at the White Plains institution since it opened in 1915.

New York City

Personal.—Dr. Martin L. Janes has been appointed visiting hematologist to the Manhattan State Hospital, Wards Island. ——Dr. Royal S. Copeland has been elected president of the newly organized Fordham National Bank at Jerome Avenue and Fordham Road.

Dr. Basil Graves to Lecture.—The New York University and Bellevue Hospital Medical College announces that beginning October 5, Dr. Basil Graves, London, England, will give three courses of two weeks each in slit lamp microscopy of the eye at that college. Further information can be obtained from the secretary, 338 East Twenty-Sixth Street.

Trust Funds of Academy of Medicine.—The annual report of the New York Academy of Medicine for 1924, which has just been received, shows that the trust funds of the academy amount to $761,268.97. The number of separate funds specified is twenty-five, ranging in amount from $100 up to the "general permanent fund" (the income of which is to be used for advancing medical science) of $412,680.71. During 1924 six other organizations maintained offices in the academy buildings, the Medical Society of the State of New York, the Medical Society of the County of New York, the Society for Relief of Widows and Orphans of Medical Men, the Physicians' Mutual Aid Association, the Hospital Information Bureau, and the Committee on Dispensary Development; thirty-eight organizations held their meetings in the academy buildings, and accommodations free of charge were granted to other associations, committees and lectures.

NORTH CAROLINA

Personal.—Governor MacLean announces the appointment of Dr. William A. Rogers, Franklin, as a member of the board of trustees of the State School for Deaf at Raleigh. ——Dr. Verne S. Caviness, Raleigh, has announced his retirement from the Mary Elizabeth Hospital staff and Diagnostic Clinic.

District Society to Conduct Clinics.—The annual session of the Tenth District Medical Society was held at Canton, September 23, under the presidency of Dr. Louis G. Beall, Black Mountain. Dr. William de B. MacNider, president, North Carolina Medical Society, the guest of honor, spoke on "The Value of Certain Drugs in Hypertension." Dr. Francis M. Davis was elected president and Dr. John LeBruce Ward, Asheville, secretary. It was decided to conduct a clinic in each of the smaller cities of the district during the year.

Tuberculosis Conference at Oteen.—A conference called by the U. S. Veterans' Bureau will be in session for two weeks at Oteen, beginning September 23; among the lecturers in attendance are Drs. Roy D. Adams, Washington, D. C.; Henry Kennon Dunham, Cincinnati; John D. MacRae, Asheville, N. C.; Nathan Barlow, dean, U. S. Veterans' Postgraduate School for Tuberculosis; Lieut.-Col. Earl H. Bruns, M. C., U. S. A., and Dr. Edgar O. Crossman, Washington, D. C. More than eighty physicians of the Veterans' Bureau are attending.

Society News.—The Edgecombe County Medical Society held a joint open session with the Parent-Teachers' Association in Greenville, N. C., September 9, and were addressed by Dr. Charles O'H. Laughinghouse of the state board of health on public and private health interests of school children.——The Wake County Medical Society recently endorsed the proposal of the Wake County Board of Health to launch an infancy and maternity hygiene ward in order to secure a standard training for midwives with proper professional instruction.

OHIO

Society News.—Dr. William J. Mayo, Rochester, Minn., was the guest of honor, September 18, at the Medical Education Day held by the Academy of Medicine of Cleveland for physicians of the fifth district of the state association.

Personal.—Dr. I. C. Riggin, Richmond, Va., recently state epidemiologist of Virginia, assumed the duties of county health commissioner of Lorain County, October 1, succeeding Dr. William A. McIntosh, who will go to Siam for the International Health Board.

Sandusky Typhoid a Milk Epidemic.—It is reported that the state director of health, Dr. J. E. Munger, recently returned from an investigation of the typhoid epidemic at Sandusky, where he found that sixty cases had been reported, all of which had been using milk from the same dairy. The dairy owner was directed to pasteurize his milk supply and prevented from delivering milk until that had been done.

PENNSYLVANIA

Typhoid at York.—About twenty cases of typhoid fever were recently reported in or near the city of York; eight new cases were reported, September 12.

Memorial Opened.—The new Lewes Mason Memorial Building of the Chester County Hospital, was opened to inspection by the public, September 19. The building is the gift of Pierre Du Pont of Wilmington and Longwood, and is dedicated to the memory of Lewes Mason, a ward of Mr. Du Pont, who died during the pandemic of influenza.

Charities Association Meeting.—The Public Charities Association of Pennsylvania will hold the fall meeting of the board of directors in Bethlehem, October 23. There will be a luncheon at the Hotel Bethlehem under the joint auspices of the Central Council of Social Service and the Woman's Club of Bethlehem. Dr. Charles H. Frazier, Philadelphia, will be the toastmaster and Dr. William L. Estes, Bethlehem, a director of the association, will preside.

Personal.—Dr. Joseph C. Bloodgood, Johns Hopkins University Medical School, Baltimore, addressed the Lycoming County Medical Society, Williamsport, September 11, on "The Diagnosis of Breast and Bone Tumors."——Dr. Harvey R. Bauman, Hawley, and his wife, Dr. Ella G. Bauman, formerly of Allentown, will sail, October 3, for India, to take up work as medical missionaries.

Joint Meeting at Valley Forge.—Physicians from the medical societies of Chester, Delaware, Schuylkill and Berks counties held a joint meeting at Valley Forge recently at the invitation of the Chester County Medical Society. Dr. William T. Sharpless, West Chester, councilor of the Third District, presided, and among the speakers were Dr. Wilmer Krusen, health commissioner of Philadelphia; Dr. Ira G. Shoemaker, president-elect of the Medical Society of the State of Pennsylvania, and Dr. John Norman Henry, president of the state society. Following the meeting a luncheon was served at the Valley Forge Inn.

Philadelphia

Hospital News.—Mayor Kendrick turned the first sod in starting the construction of the new $4,000,000 Philadelphia General Hospital at Thirty-Fourth and Pine streets, September 22.

Society News.—At the first fall meeting of the Women's Auxiliary of the Philadelphia County Medical Society, in the Bellevue-Stratford Hotel, September 17, Dr. Charles N. Sturtevant, Frankford, spoke on "The Care of Children."

National Medical Congress at Sesquicentennial.—The Philadelphia County Medical Society is making plans for a National Medical Congress in this city next year during the sesquicentennial celebration. Invitations will be sent to national and international medical organizations to meet in Philadelphia simultaneously. An international medical congress was held in Philadelphia in 1876 during the celebration of the centennial.

Dr. French Goes to University of Pennsylvania.—Dr. Harley E. French has been appointed assistant professor of anatomy in the University of Pennsylvania School of Medicine, according to the announcement made by Josiah Penniman, LL.D., president and provost, at the opening exercises, September 25. Dr. French was professor of anatomy and dean of the School of Medicine of the University of North Dakota for fourteen years and professor of physiology and anatomy at the University of South Dakota for four years.

Opening Session at Jefferson Medical College.—The one hundred and first annual session of Jefferson Medical College, Philadelphia, was opened, September 23, with an assembly of the faculty, officers of the college and the student body in the new hospital building. The freshman class, which, it is reported, numbers this year 175, was selected from more than 2,200 applications for admission. William Potter, president of the board of trustees, and formerly U. S. minister to Italy, Dr. Ross V. Patterson, and Dr. Fielding O. Lewis, professor of laryngology, gave addresses. Additions to the faculty announced were Dr. Pascal Brooke Bland, professor of obstetrics, Dr. William M. Sweet, professor of ophthalmology, and Dr. Edward A. Strecker, professor of nervous and mental diseases.

TENNESSEE

Personal.—Dr. Haven Emerson, New York, spent September 14-16 in Memphis for conferences in connection with the survey of hospitals and other health agencies in this city.

Hospital News.—The Mountain View General Hospital, Erwin, was recently opened.——The new building of the King's Mountain Memorial Hospital, Bristol, will be opened, October 7.

Medical Arts Building.—The Tennessee Independent Order of Odd Fellows will erect a twelve-story medical arts building costing $800,000, at 119 Seventh Avenue, North, Nashville. There will be a garage in the basement for tenants in the building which will accommodate ninety cars. Work on the structure will start as soon as the old building on this site can be removed.

TEXAS

Hospital News.—Dr. A. B. Garland has awarded the contract for a $50,000 hospital building at Cumberland and Wichita streets, Vernon, which will bring the total bed capacity of the hospital to 125.

Personal.—Dr. Charles W. Castner, September 1, assumed the duties of superintendent of the State Hospital for the Insane at Wichita Falls.——Meyer Bodansky, Ph.D., associate professor of biological chemistry, University of Texas Department of Medicine, Galveston, has been granted a leave of absence for 1925-1926 to accept a temporary appointment in the department of chemistry of Stanford University.

Proposed Health Unit for Amarillo.—The Potter County Medical Society has appointed a committee, comprising Drs. James R. Wrather, Willis H. Flamm and Martin L. Fuller, to investigate a report on the proposal of the Rockefeller Foundation to establish a health unit in Amarillo. The financial arrangement will be that the state health department, the city of Amarillo, Potter County and the Rockefeller Foundation pay appropriate portions of the expense of the unit.

Enforcing the Medical Practice Act.—The secretary of the State Medical Association of Texas writes that the association is joining heartily in the campaign of the state board of medical examiners to enforce the Medical Practice Act, and that they are being successful. The chief offenders against the Medical Practice Act in Texas, the secretary says, are chiropractors. The Medical Practice Act now has a clause providing for injunction against chronic violators of this law, which is being applied as soon as possible in each case. Prosecutions are now pending in a large number of counties in the state and complaints are being filed almost daily.

WASHINGTON

Society News.—Dr. Carl E. Koenig addressed the Puget Sound Academy of Ophthalmology and Otolaryngology, September 15, at the Virginia Mason Hospital, Seattle, on "The Value of the Granger Line in Diagnosis of Disease of the Sphenoid Sinus."——The general meeting of the King County Medical Society, September 14, was held in conjunction with the Surgical Section. A motion was carried for the appointment of a committee to work in cooperation with the commissioner of health of Seattle in matters that pertained to the health of the city. Dr. Erestus T. Hanley, commissioner of health of Seattle, addressed the society.

PHILIPPINE ISLANDS

Outbreak of Cholera in Manila.—There were nineteen cases of cholera in Manila reported between September 1 and September 27; fourteen of them were fatal. There were also in this period forty-two other suspected cases of cholera. The health department administered anticholera vaccine, September 27, it is reported, to 4,000 persons. A later report gives the number of new cases on September 29 as twenty and the number of deaths on that day as six.

CANADA

Gifts to Hospital.—Mr. A. R. McNichol, Winnipeg, has donated $250,000 to the Winnipeg General Hospital, and $100,000 to the Children's Hospital, for endowment purposes to be used in such manner as the board may see fit.

Physicians in Provincial Parliament.—Four of twelve medical candidates for the provincial parliament of Nova Scotia were successful at the recent elections. They are Drs. Wallace N. Rehfuss, Bridgewater; John A. MacDonald, St. Peters; John L. MacIsaac, Antigonish, and Benjamin A. LeBlanc, Arichat.

Hospital News.—The Ste. Agathe Sanatorium, Quebec, was ready for the reception of patients, September 1; the capacity now is 210 beds. The old main building will be set aside for private patients; there are no wards of more than eight beds. The hospital has been taken over from the provincial government by the Laurentian Sanatorium Association.

No Medical Graduates This Year from Queens University.—As a result of changing from five to a six year course, there were no graduates in medicine from the Medical Faculty of Queens University, Kingston, Ont., for the year 1925. One hundred and seventeen students received the degree of M.B. from the University of Toronto Faculty of Medicine in June. There were twenty-one graduates from the University of Western Ontario Medical School, London.

Scholarship Prizes and Fellowships.—At the June commencement of the University of Toronto Faculty of Medicine, Toronto, J. H. Couch was awarded the George Brown Memorial Fellowship; C. E. Knowlton, the George Armstrong Peters Scholarship; William A. Costain, the Reeve Prize; C. E. Knowlton, the Chappell Prize; C. H. Best, the J. J. Mackenzie Prize; Miss C. H. Craw, the James H. Richardson Fellowship, and C. H. Best, the Ellen Mickle Fellowship.

Personal.—Dr. Arthur C. Jost, provincial health officer of Nova Scotia, has been appointed deputy registrar general.——Dr. Joseph Guerard, Quebec, has been appointed medical director of the Laval Hospital, St. Foy, Quebec, to succeed Dr. Odilon Leclerc.——Dr. James W. Crane, London, Ontario, has been elected president of the Harvey Club to succeed Dr. Hibbert W. Hill, who resigned when he accepted the position of professor of public health at the University of British Columbia.——Dr. F. May Whittaker, London, England, has arrived in Winnipeg to assume the duties of superintendent of Grace Hospital of the Salvation Army. Dr. Whittaker served four and a half years in France during the World War.

Banting Research Foundation.—The endowment of the Banting Research Foundation will be invested under the direction of the board of governors of the University of Toronto, who will act as trustees. They will pay to the governing body of the foundation the annual income from the endowment for disbursement. The present board of the foundation consists of Sir Robert Falconer, Lieut.-Col. R. W. Leonard, Dr. William E. Gallie, Prof. J. G. Fitzgerald, Prof. V. E. Henderson, Rev. Canon H. J. Cody, O. S. Macdonald and John W. Rogers. The *Canadian Medical Association Journal* says that the income from $500,000 is considered sufficient to support the foundation for some years; it is proposed to make the funds available to assist research workers either working independently or in any other university in Canada. The foundation has been established with a view to discovering means for the prevention and cure of diseases which at present are considered incurable. Neither Dr. Banting nor Dr. Best will receive anything from the foundation; they have renounced all rights to any income from royalties or patents from the sale of insulin.

GENERAL

Medical Bookplates.—Mr. H. M. Barlow, secretary of the Royal College of Physicians, Pall Mall East, S.W.1, London, England, is making a collection of bookplates of medical interest for the library of the college. Physicians who possess bookplates will aid the collection by sending copies to Mr. Barlow.

Dr. Howard Rescued.—Dr. Harvey J. Howard, head of the ophthalmologic department, Peking Union Medical College, Peking, China, who was captured by bandits, July 20, in Manchuria, and has since been held for ransom, has been released, it is reported, following a battle between his captors and Chinese troops.

Award of Prize of Roentgen Ray Society.—At the annual meeting of the American Roentgen Ray Society, Washington, D. C., September 22, the committee decided to award the $1,000 Leonard Prize in two portions of $600 and $400, and to award the former to Drs. Evarts A. Graham, Glover H. Copher and Warren H. Cole, all of St. Louis, for their work on cholecystography (The Journal, Jan. 3, 1925, p. 14, and April 18, 1925, p. 1174) and the latter portion to G. Failla, New York, for his work on radon.

American Student Health Association.—The next meeting of this association will be in New York City, December 29-30. The meeting has been arranged to coincide with that of the National Collegiate Athletic Association at the Hotel Astor, and the program of the first session so as to interest directors of athletics and coaches. There will be four sessions in all. In arranging the program, the secretary, Dr. Warren E. Forsythe, University of Michigan, Ann Arbor, requests that those who know of interesting work in this field communicate with him.

Public Health in Palestine.—The president of the American Branch of the Palestine Foundation announced, September 26, that American Jews would be called on to contribute $3,000,000 in the next year for the development of the Jewish homeland in Palestine, and that during the four years of its existence the fund has expended there over $8,000,000, of which two-thirds has come from the United States. Among the items in its budget for the coming year is one of $200,000 for public health work to continue the campaign against malaria and other diseases.

Personal.—Dr. Theobald Smith, director of the department of animal pathology of the Rockefeller Institute, has been nominated president of the International Anti-Tuberculosis Union. At the recent meeting in Geneva it was decided to hold the next international conference at Washington, D. C., from September 30 to October 2, 1926.——Vernon Kellogg, Sc.D., of the National Research Council, was made Commander of the Order of Leopold by King Albert while in Belgium recently where he attended the meeting of the International Research Council at Brussels.

Schools Teaching Oral Hygiene.—The Department of the Interior reports that ten educational institutions now give courses for training oral hygienists, and that twenty-one states license the oral hygienists to practice while other states permit their teaching oral hygiene. The course in most cases extends over one academic year and consists in acquiring the technic of the examination and cleaning of teeth and other minor dental operations. The Department of the Interior considers this a new occupation which has arisen out of the recent development in preventive medicine.

American Stomatological Association.—For the first time in the history of the International Stomatological Association, the American Stomatological Association was admitted to membership at the recent Paris meeting. The international association, which now has twenty-eight countries represented, is a medical association which fosters the idea that the medical degree, or as it is called in some other countries the medical requirement, should be legally established for the practice of dentistry throughout the world. Alfred J. Asgis, D.D.S., New York, was appointed adjunct secretary general of the American Association, and a corresponding member of the Italian Stomatological Federation.

League Adopts Plan to Replace Opium Crop.—The League of Nations Assembly Commission adopted, September 23, the project of sending a commission to Persia to study the possibility of replacing the cultivation of opium in that country by other agricultural products and recommended to the Budget Commission the allotment of 200,000 francs for this work. This plan was sponsored last year by the American delegation to the opium conference. An investigating committee will probably start for Persia in the spring, and there is a possibility that the commission may go to Turkey for similar studies; Serbia has expressed a willingness to discuss the possibility of changing her crops also.

Classification of Dental Colleges.—According to the *Atlantic Medical Journal,* the Dental Educational Council of America has established a predental year for 1926 as one requirement for Class A rating of dental colleges. The "two-three graduate plan of dental education" now under trial proposes two years of work in a liberal arts college followed by three years in a dental school for a degree for the general practitioner while the various dental specialties can be taught in full year graduate courses to those who elect them. The Dental Educational Council recently issued a list of dental schools of the United States: there were twenty-four in Class A, fourteen in Class B, two in Class C, and the rating of three was postponed.

Building Code for Hospitals.—A committee, representing organizations of architects, engineers, insurance companies and others interested in safety, has drawn up a building code to safeguard the lives of patients and other occupants of hospitals, sanatoriums and corrective institutions. The code awaits the acceptance of all of the interested organizations when, according to *Hospital Progress,* it will be recommended for minimum use in the development of legislation concerning the construction and management of hospitals. The code emphasizes substantial construction, fire prevention and good management. The committee recommends that existing hospital buildings should be made to conform to the standards for new buildings as far as possible.

Proposed Registration Area for Morbidity Reports.—The last Congress ratified an international treaty providing that each signatory power shall publish statistics of communicable and preventable diseases. According to Surgeon General Cummings reports of communicable diseases at present are provided by state and local health officers with very little share in the expense by the federal government. Congress failed to approve an estimate of $4,000 to assist in this work for the fiscal year 1925 and a like estimate for the year 1926. At the last conference of state health officers, a resolution was unanimously adopted asking that steps be taken to create a registration area for morbidity reports comparable to the registration areas of the census bureau for births and deaths.

Automobile Fatalities.—The Department of Commerce announces that reports from thirty-nine cities of 100,000 population or more show more automobile fatalities in the four weeks ending September 12 than in the previous four weeks. In fifty-seven cities aggregating a population of 27,000,000 there were 3,313 automobile fatalities reported from January 1 to September 12, and of these 13 per cent. were reported in the last four week period. Norfolk reported no fatalities for the last eight weeks, and Albany, Cambridge, Dallas, El Paso, Fall River, Fort Worth and Somerville none for the last four weeks. Somerville, with four deaths, holds the record thus far for 1925. New York has reported to the Department of Commerce 638 automobile fatalities; Chicago, 410; Philadelphia, 191; Detroit, 183, and Cleveland and Los Angeles, 154.

Library Association Protests High Cost of German Publications.—The executive committee of the American Medical Library Association is making an investigation of the present high cost of German medical publications. It is hoped to determine whether or not concerted action on the part of medical libraries of America will cause German publishers to curtail their output and to reduce the cost of their publications to American purchasers. It is pointed out that many American libraries and publishers have donated subscriptions to German libraries and physicians, but that German publishers have seemed to appreciate but little this evidence of good will. In order to obtain evidence of the interest in some joint action in the matter, those willing to aid in the movement are asked to communicate with Miss Margaret Brinton, librarian, Mayo Clinic, Rochester, Minn.

New England Surgical Society.—The annual meeting of this society will be at Springfield, Mass., October 2-3, at the Hotel Kimball, under the presidency of Dr. John W. Keefe, Providence, R. I. There will be clinics at the Springfield Hospital Friday and at the Mercy Hospital Saturday. Among the speakers will be Dr. Charles L. Scudder, Boston; Dr. Ernest L. Hunt, Worcester, Mass.; Dr. Daniel C. Patterson, Bridgeport, Conn.; Dr. Horace P. Stevens, Cambridge; Phileman E. Truesdale, Fall River; Dr. George A. Moore, Brookton, Mass.; Dr. Carl M. Robinson, Portland, Maine; Dr. Dudley Carleton, Springfield, Mass.; Dr. Walter C. Seelye, Worcester, Mass.; Dr. William F. Verdi, New Haven, Conn., and Dr. Alfred M. Rowley, Hartford, Conn. The annual dinner will be at the Longmeadow Country Club, 7:30 p. m., Friday. The ladies are invited to a tea at the Springfield Country Club, at 4 p. m., Friday.

Bequests and Donations.—The following bequests and donations have been announced recently:

St. Joseph's Mercy Hospital, Webster City, Ia., $30,000, by the will of the late C. J. Pitcher.

Mrs. Anna Cook, Collinsville, Ill., has donated a site for a hospital for that city, provided construction is started previous to her death.

The New York Skin and Cancer Hospital, New York City; St. Christopher's Hospital for Babies, Brooklyn; the Brooklyn and Jewish Hospitals, Brooklyn, and the Graham Home for Old Ladies, Brooklyn, each $5,000 by the will of the late William D. Hoxie.

The Pennsylvania Hospital, Philadelphia, $40,000; the Philadelphia Orthopedic Hospital, $8,000; the Visiting Nurse Society, $3,000; The Pennsylvania Hospital, Philadelphia, for the use of the social service department, $2,000; the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, $1,000; the Babies' Hospital and the Oncologic Hospital for Cancer, each $500; by the will of the late Mary F. Small.

The Presbyterian Hospital, New York, sufficient funds to endow a bed in memory of her parents and to endow a room, by the will of the late Mrs. Anna A. Johnston.

St. Joseph's Hospital, Yonkers, N. Y., $200 by the will of the late Agnes L. O'Rourke of Yonkers.

Mount Sinai Hospital, New York, $100,000 by the will of the late Mrs. Emma Rosenwald.

The Montefiore Hospital, New York, $30,000, and Mount Sinai Hospital, New York, $10,000, by the will of the late Mrs. Ida R. Cullman.

Graham Hospital, Canton, Ill., $50,000 by the will of Joseph Murphy.

St. Vincent's, St. John's, St. Alexis, and St. Ann's hospitals, all of Cleveland, $200 each in the will of the late Francis J. Frawley.

American Roentgen Ray Society Election.—About 450 physicians attended the twenty-sixth annual convention of the American Roentgen Ray Society, at Washington, D. C., September 22-25. Following installation of the president, Dr. Thomas A. Groover, Washington (who is also president of the Medical Society of the District of Columbia), by Dr. George W. Holmes, Boston, the retiring president, there was a symposium on gallbladder disease. A dental clinic was held by Arthur B. Crane, D.D.S., Washington, and L. M. Christie, D.D.S., Washington, to demonstrate the need for closer cooperation between the medical and dental professions. The Caldwell lecture, an annual feature, in memory of Eugene Caldwell, New York, a martyr to the roentgen ray, was delivered by Dr. James Ewing, professor of pathology at Cornell University Medical College, New York, who spoke on "Tissue Reactions to Radiation." The election of officers for 1926 on the last day of the convention made Dr. Russel D. Carman, Mayo Clinic, Rochester, Minn., president-elect; Drs. Patrick F. Butler, Boston, and Charles M. Richards, San Jose, Calif., vice presidents; Dr. Charles L. Martin, Dallas, Texas, secretary; Dr. William A. Evans, Detroit, treasurer, and Dr. William M. Doughty, Cincinnati, member of the executive committee. The next annual meeting will be held in the spring of 1926 at Detroit, Mich.

FOREIGN

Conference on Congenital Syphilis.—The French League Against the Venereal Peril has organized a conference for the first week in October at Paris to discuss congenital syphilis, its preventive treatment and the treatment of infants and children with manifestations of congenital syphilis.

University Chair of Physical Culture.—Our exchanges state that H. Altrock, a leader in the movement for physical training and athletics in Germany, has been called to the newly founded chair of Pädagogik der Leibesübungen at Leipzig, the first professorship of physical culture in the country.

Reception to Visiting Spanish Physicians.—The medical societies of Berlin, Germany, united in a reception to the thirty-six Spanish physicians now touring Germany. Professor Ferrán, a member of the party, announced that he would donate material to those who would like to study the results of his research on the mutation of tubercle bacilli and vaccination against tuberculosis.

Centennial of Medical School.—In the second week of November will be celebrated the centenary of the Regia Escola de Cirurgia at Lisbon. A souvenir volume is to be published with the history of the school, and the bust of the late Prof. M. Bombarda will be unveiled, and a memorial tablet to the physicians who died in clinical service. A souvenir medal is also planned and a retrospective exposition, and series of postgraduate lectures throughout the month. The students are also organizing athletic events. Profs. Ricardo Jorge, Bello Moraes and Egas Moniz are to deliver the main addresses.

Personal.—The Minich prize, awarded by the Venice Academy of Sciences, has been divided between Prof. L. Castaldi, Florence, and Prof. P. Enriques, Padua, for their works, "Influence of the Suprarenal Cortex on the Growth of the Skeleton" and "Functional Relations Between the Endocrine Glands and Fracture of Bones." The topic appointed for competition was "Influence of the Endocrine System on the Skeleton."——Dr. Vogel-Eysern, Davos, is the secretary of the newly organized International Bioclimatic Federation.——The Graefe prize awarded by the German Ophthalmologic Society was not given entirely to Prof. E. Seidel, Heidelberg, as announced at first, but was divided equally between him and Prof. von Szily, Münster. The prize winning research of the former was on the interchange of fluids in the eye, and glaucoma; of the other, on embryology and teratology of the eye.——Dr. Pio Naldi, who was condemned to seventeen years' imprisonment for the killing of Count Bonmartini, has had part of his term condoned and has been rehabilitated by the Turin court of appeals. He has settled at Benevento.

Government Services

U. S. Public Health Service

Surg. Charles Armstrong has been directed to proceed to such places as may be necessary up to September 30, and return, to investigate complications associated with vaccinations against smallpox.——Acting Asst. Surg. Albert S. Gray has been directed to proceed from time in time up to September 30 on receipt of written instructions, to Barre, Vt., and return, in connection with the physical examinations made in the marble quarries at Barre.——P. A. Surg. Claude W. Mitchell has been directed to proceed to Baltimore, and return, for a conference relative to studies of diphtheria conducted in that city.——Surg. Gleason C. Lake was directed to proceed, August 1, to Norton, Va., and such other places as necessary to investigate an outbreak of tularemia.——Senior Surg. Taliaferro Clark was directed to proceed about July 31 to Hagerstown, Md., to inspect the progress of child hygiene studies being conducted at that place.——Dr. John F. G. Gates has been appointed assistant surgeon in the regular corps of the U. S. Public Health Service.——Acting Asst. Surg. William W. Hoyt has been relieved from duty at Marseilles, France, and assigned to duty at Glasgow, Scotland.——Surg. J. G. Townsend has been directed to proceed from Washington, D. C., to Baltimore and return, in connection with influenza investigations.——Asst. Surg. Kenneth F. Maxcy has been directed to proceed from Montgomery, Ala., to Savannah, Ga., and return, in connection with studies of Brill's disease.——Surg. James P. Leake has been directed to proceed from Washington, D. C., to Cincinnati and other points in that vicinity, and return, in connection with tetra-ethyl lead gasoline studies.——P. A. Surg. J. F. Mahoney has been relieved from duty at Ellis Island, New York, and assigned to duty at Dublin, Ireland, and will be detailed temporarily to Cobh and Belfast to meet emergencies in the examination of aliens.——Acting Asst. Surg. Neil E. Taylor has been directed to proceed from Cincinnati to Hartford, Conn., and other places in that vicinity as may be necessary, and return, in connection with goiter study.

Army Personals

Capt. Virgil A. Harl, M. C., U. S. Army, has resigned, effective October 30.——Major James A. Bethea, Washington, D. C., will sail about Jan. 6, 1926, from New York to the Philippine Islands for duty.

Three Hundred Changes in Veterans' Bureau

Efforts are being made by the director of the Veterans' Bureau to place the medical personnel of the bureau on a more stable basis. Director Hines recently conferred with President Coolidge to obtain approval of a plan to create a medical corps in the bureau similar to that of the army and the navy. General Hines explained that the efficiency of the medical officers would be advanced. He said that at present there are more than 1,700 medical officers in the Veterans' Bureau, and that there were more than 300 changes in the personnel in the last year, which in itself is proof that action should be taken to place Veterans' Bureau physicians on a more stable footing. General Hines told the President that the proposed medical corps would not add more than $100,000 to the annual expense of the Veterans' Bureau.

Special Instruction for Navy Officers

The Bureau of Medicine and Surgery, Navy Department, announces that it is ready to receive applications from officers who wish to specialize. The next course in aviation medicine at the Army School, Mitchell Field, Long Island, N. Y., will begin in January, 1926; those who desire to qualify as flight surgeons should make application before December 1. The bureau desires to call the attention of medical officers to the need and importance of laboratory work, and applications for special instruction in this field are assured of receiving favorable consideration. A number of medical officers, fully qualified, who desire fellowships in surgery, should submit their applications not later than July 1, 1926.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 12, 1925.

Protest by Irish Physicians Against the Government Proposal to Establish a Seperate Medical Register

The proposal to establish in Ireland a medical register separate from that of Great Britain has produced an intense controversy in which the government of the Irish Free State is on one side and practically the whole Irish profession, including the ordinary nationalist supporters of the government, are on the other. It is a question of nationalism—always a powerful force in Ireland—versus the interests of the medical profession. A meeting of several hundred physicians from all parts of the Free State was held in the Royal College of Surgeons, Dublin, to protest against the proposal of the Free State government to establish a separate register. Mr. R. C. B. Maunsell, President of the Royal College of Surgeons, Ireland, who presided, said that the agitation had not been undertaken in the interests of physicians now practicing, as the proposed change would not affect their well-being, but was solely in the interests of future generations of physicians, and through them of the public. Leaders of the profession had no political motive, nor did they wish to embarrass the government; but when the executive council had declared its intention to advise a change which would almost certainly bring ruin on the Irish School of Medicine and Surgery, it was incumbent on those whose duty it was to guard and cherish that school to point out the disastrous consequences of proposed legislation. The Dublin surgeon Sir Arthur Chance said he had the opinion of an authority, which he unhesitatingly bowed to, that on the expiration of the present arrangement in February, 1926, two things would follow automatically. First, the Irish branch of the medical council would consist wholly of Ulster members and control would be transferred to Belfast; second, the medical act of 1886, with all sections relating to colonial and foreign lists and reciprocal recognition of colonial diplomas and physicians, would cease to apply to the Free State. The machinery for reciprocity would be destroyed by the Free State's own action. The only way of restoring power to the Free State to apply for real reciprocity would be for the South Irish and the British parliaments to pass acts, simultaneously. If a separate register was set up in the Free State, the medical council would be like a bull with a ring in its nose and would have to go when and where the rope led it. The impotence of the Free State medical council would not enhance the dignity of the Free State, while there was not a colony or dominion today in the British empire which would not leap at the advantages the Free State government proposed to forego. A second resolution was passed, that, should the conference not come to a satisfactory conclusion, a public meeting be held at an early date to enable the governors and subscribers of hospitals to discuss the effect of the proposed change. Surg. John S. M'Ardle said that Irish hospitals would lose the services of a large number of students who now gave services freely to those institutions. Sir Thomas Myles said that the public hardly realized how much the efficiency of Dublin hospitals depended on the services rendered freely by the students. On the other hand Mr. Cosgrave, president of the Free State executive council, has made a momentous statement to a deputation of the president and fellows of the Royal College of Physicians of Ireland. He said that a final and definite decision had been made to promote a bill in parliament for the establishment of a medical council and register for the Free State. He hoped that the Irish physicians would cooperate with the government in the framing of the necessary legislation. When the bill had been passed, his government would approach the British government with a view to obtaining some form of reciprocity between the countries. He believed that he would obtain such a measure of reciprocity as would safeguard the status of those seeking Irish medical qualifications. The deputation urged that, in the meantime, the existing conditions be allowed to continue. Mr. Cosgrave was sympathetic with this request, but insisted that any such conditions must not be used to delay the settlement of the Irish register. He said that if the medical profession was willing to cooperate with him he would be willing to meet them, but if they should refuse cooperation the government was prepared to go to the country and fight the matter out on the hustings.

Fear by Irish Veterinary Surgeons of a Separate Register

The proposal for the institution of a separate medical register for the Free State, it is feared, will be followed by a similar proposal in respect to veterinary surgeons, who at present form part of the corporate body of the Royal College of Veterinary Surgeons, with headquarters in London. The divorcement from this body and the investment of sole control within the borders of so small a country as the Free State may prove disastrous to the Veterinary College of Ireland, located in Dublin, as it will contract the field for appointments which graduates of the college, the only one in Ireland, have hitherto enjoyed. Since the opening of the college in 1900, up to the end of 1924 there have been 411 graduates, of whom 212, or 51.58 per cent., are practicing in the Irish Free State. The remainder (48.42 per cent.) are either located in northern Ireland (14.35 per cent.) or outside Ireland (33.1 per cent.) in British government service of the army or colonies, or practicing in Great Britain. The fear of separation appears already to have caused a diminution of entrants, for only five students presented themselves for examination at the end of the first year's professional course in July last.

Two Types of Tsetse Fly

In a letter to the *Times*, Dr. G. D. Hale Carpenter, senior medical officer in charge of trypanosomiasis, Uganda, calls attention to confusion arising from looseness of expression in discussions of the tsetse fly problem. He points out that there are two tsetse flies: (*a*) those inhabiting bush of greater or less density not necessarily near water, and (*b*) those requiring thicker forest and proximity to water. The first-named group contains *Glossina morsitans*, *G. pallidipes*, and the recently discovered *G. swynnertoni*. The former species was known as "the fly" to the South African pioneers, and pallidipes was the first species proved by Sir David Bruce to be the carrier of "fly disease" of cattle; together with *Glossina morsitans* it is the most fruitful cause of this. Subsequently, however, the allied human disease, trypanosomiasis, devastated Uganda, and when it was proved to be carried by *Glossina palpalis*, which typically inhabits thick forest near the water, attention was naturally directed rather toward the species directly inimical to man than to those only indirectly harming him through his cattle. After the subsidence of the great epidemic in Uganda, attention was again directed to *Glossina morsitans* on account of an acute human disease carried by it and not causing the symptoms typical of trypanosomiasis. More recently, *Glossina swynnertoni* has been shown to carry this disease. Thus, at the end of the nineteenth century the term "the tsetse" would have been generally interpreted to mean *Glossina morsitans;* but when the great epidemic was raging in Uganda at the beginning of this century, the term would probably have connoted in the public mind the water-frequenting *Glossina palpalis*. But the pendulum has now swung back again to accentuate the importance of the *Glossina morsitans* group, partly on account of the great attention paid to it by the recent parliamentary commission to East Africa. Extermination of the tsetse fly is at present much discussed, but it is necessary to specify which tsetse fly. The species of the first group can be attacked by systematic burning of the bush on a large scale in the dry season. How can this be done so as to affect *Glossina palpalis* living near the water, where the vegetation is always green and usually of very dense type? Sufficient clearing to destroy the fly is quite beyond the powers of the limited population inhabiting infested areas, and the utmost that seems possible from purely administrative measures is the concentration of the population within areas of size no larger than can be made safe by the united efforts of the inhabitants.

Increase of Railway Accidents

More people were killed and injured in accidents to trains, rolling stock and permanent way on British railways during 1924 than in any year since 1920. According to the ministry of transport, returns of accidents and casualties on the railways of Great Britain for the year ended Dec. 31, 1924, 42 persons were killed in 1924 and 683 injured, as compared with 19 and 566 in 1923, 21 and 519 in 1922, and 30 and 678 in 1921. In accidents caused by the movement of railway vehicles, exclusive of accidents to the trains themselves, 366 people were killed and 6,538 injured, 2,677 of the latter number being passengers and 3,764 employees of the company. In accidents on railway premises not connected with the movement of railway vehicles, 54 people were killed and 18,420 injured. The totals for the year under review show that 462 people were killed and 25,641 injured, as compared with the following number for the previous four years: 1923, 407 and 23,104; 1922, 402 and 19,344; 1921, 416 and 18,873; and 1920, 635 and 25,143. There were 290 train collisions in 1924, 408 derailments, 331 cases of trains running into level crossing gates, 98 fires, and 24 miscellaneous accidents to trains. Of accidents to, or failure of, rolling stock, the most frequent were failures of coupling apparatus, to the number of 10,586. Sixty-two cases of derailment of passenger trains occurred, and in 140 cases trains ran into animals on the line.

French and English Birth Rates

It is a current misconception that the stationary population of France (a diminishing one but for immigration) is due to the low birth rate. But the French birth rate approximates closely the English one, although in England there is a steady increase of population. The explanation is that what is wrong with France is the infant mortality. The French birth rate for 1923 was 19.4 per thousand of population, while that of England and Wales was 19.7. The rate for the latter in the first quarter of 1925 was equivalent only to an annual rate of 19.4. On the other hand, the death rate of France in 1923 was 17 per thousand, as compared with 11.6 in England and Wales. Deaths of infants under 1 year of age in the same period were 96 per thousand births, as compared with 69 in England and Wales.

Air Pollution in the City of London

Dr. Howarth, health officer for the city of London, refers to the evil from coal smoke. During July, 1924, the amount of deposit registered as falling in the city was 53 tons. Of that mass, 24.9 tons was soluble and 28.7 tons insoluble, and consisting of tar, carbon, and grit. For many years it has been increasingly obvious that the use of electricity and gas for heating and cooking is contributing to the diminution of the nuisance from smoke. The cost of electricity is still far too great for its general use, but the substitution of gas for coal and coke in restaurants and business premises is practicable.

Diphtheria in London

Reference to the increasing prevalence of diphtheria in London is made in the annual report for the year 1924-1925 of the Metropolitan Asylums Board. There is a popular tendency, it says, to class diphtheria with scarlet fever, typhoid and certain other infectious diseases, as one that modern medical science has definitely controlled. That, however, is far from being the case, and London especially should look for an advance comparable with the introduction of the antitoxin treatment thirty years ago. The board's figures show that the attack on diphtheria has fallen behind that directed against the other infectious diseases. This disease, which is now the most destructive of the infectious diseases encountered in Great Britain, and, at any rate in London, appears to be resisting attack. It is suggested that education authorities should follow the lead of New York and undertake the testing and immunization by the Schick method of all children of school age.

PARIS

(From Our Regular Correspondent)

Sept. 9, 1925.

Clinical Types of Pulmonary Gangrene

At the recent congress of medicine in Nancy, Drs. Bezançon and De Jong presented an excellent paper on clinical types of pulmonary gangrene. They emphasized that the term "pulmonary gangrene" had become more comprehensive recently. At present the conception includes all fetid suppurations of the lung. Most commonly they are complications of bronchial dilatation; less frequently they are caused by septic pulmonary embolism, air-borne infection or tracheal deglutition of food or pus. Primary types follow general weakening or are without assignable cause. The authors distinguish three principal types: 1. An acute type (the embolic type); with genuine septicemia; signs of localization lacking or not discoverable till late. In this Rist emphasized the diagnostic significance of thoracic pain. 2. An acute type with signs of localization; genuine pneumonia, rapid spreading and cavitation. Here the onset may be sudden and the evolution rapid; in other cases the gravity of the symptoms coincides with the appearance of cavities. 3. Localized types with successive periodic attacks, which are the forms on which Bezançon and De Jong dwelt, calling attention to the polymorphism of this type and pointing out that the onset—which may take on the form of hemoptysis—may be sudden or insidious. They hold that roentgenologic signs, which are exceedingly variable, changing from day to day, cannot be relied on to differentiate these types. The same thing is true of physical signs. The successive periodic attacks are, however, of great significance in recognizing this type of pulmonary gangrene. The attacks are distributed over several years (usually three or four). They are followed by remissions during which there is a chance of recovery. Sometimes the sputum ceases to be fetid, but, as a rule, expectoration persists. Relapses generally occur and the patient gradually grows weaker. The end is often hastened by grave pleural complications, which are more frequent when the gangrenous focus is superficial. Occasionally a pain in the side and intense dyspnea point to the opening in the pleura of the gangrenous focus.

The authors considered that the bronchial type did not merit a description. They pointed out that purulent bronchitis is not associated with gangrene and that it is caused only by a collection of anaerobic organisms which are responsible for its particular character. The association of tuberculosis and pulmonary gangrene is exceptional. Usually it is only a slight gangrene of the walls of a large cavity or a bronchus. The diagnosis of pulmonary gangrene is difficult, for all the pulmonary cavities opening into bronchi easily become the seat of fetid suppuration. The same is true of pulmonary abscess, interlobar pleurisy and dilatations of the bronchi. The chronicity of certain pulmonary gangrenes with periodic flare-ups add to the difficulties of the clinician. Hemoptysis is a significant sign if it occurs repeatedly. If laboratory examination of the sputum reveals numerous polymorphous micro-organisms, spirochetes or fusospirillary forms, that will aid in the diagnosis. Bezançon and De Jong stressed the importance of the labors of Veillon, Zuber and Rist, who established the part played by anaerobes in gangrenous processes. In dealing with the importance of spiral organisms in pulmonary gangrene, they spoke of the association of fusospirillary forms and of the spirochete occurring in Castellani's hemorrhagic bronchitis (bronchospirochetosis).

In discussion, M. Rist gave his point of view, emphasizing the types of gangrene that develop after aseptic surgical operations, gastrostomy, gastro-enterostomy and the radical treatment of epigastric hernia. He recommended artificial pneumothorax as early treatment possibly combined with serotherapy and arsenotherapy. M. Jaquerod supported the opinion of the authors that pulmonary tuberculosis and pulmonary gangrene were but rarely associated.

ITALY

(From Our Regular Correspondent)

Sept. 9, 1925.

Regulations for the Protection of Mothers and Infants

Signor Federzoni, minister of the interior, has appointed a commission to draw up a preliminary set of regulations for the protection and assistance of mothers and infants. The commission consists of Professor Marchiafava, chairman; Prof. Ernesto Pestalozza, Dr. Alberto Pironti, Signor Martire and Professor Valagussa.

The Fourteenth Italian Congress of Stomatology

The fourteenth Italian Stomatologic Congress, which is under the auspices of the Federazione stomatologica italiana, will be held at Fiume, September 10. This congress is important from both the scientific and the professional standpoint. Many Italian and foreign stomatologists have sent communications on various subjects. Hungarian stomatologists, chiefly, will attend. After the congress at Fiume, the Italians will inspect the Stomatologic Institute in Budapest and will be present at the unveiling of a monument in memory of the Hungarian stomatologist von Arkövy, who died recently.

The Italian-English Reciprocity Agreement as to Licensure in Medicine and Surgery

The new reciprocity agreement between Italy and Great Britain allows graduate physicians and surgeons of either nation to have their names enrolled in the medical register of the other, whereby they may practice their profession in either country without having to pass a new examination.

Prize Open to Italian Medical Officers

In connection with the ceremonies that the Italian medical corps held last year in memory of the physicians who fell during the war, Surgeon General Ferrero di Cavallerleone established a fund of 20,000 liras, stipulating that the quadrennial proceeds should be awarded to the medical officer in active service who, during the four years, had won the greatest distinction, either through the publication of an important work or treatise of a medicoscientific character or through having made some important scientific discovery. In case no such award can be made, the proceeds shall be given to the medical officer on active duty who, by virtue of his character and attainments, gives the best assurance of being able to profit by a period of study abroad in the military medical service of some other nation. By a recent royal decree, the foundation has been approved.

Typhoid and Antityphoid Vaccination in the Italian Army

In connection with an outbreak of typhoid fever that occurred in a regiment of field artillery during last year's shooting tournament, Colonel Memmo, M.D., of the ministry of war, completed studies on the epidemiology of typhoid in the Italian army. Antityphoid vaccination was first introduced into the army during the war with Libya (1912-1913) and was made compulsory in March, 1917. The aqueous vaccine prepared by either the Wright-Leishmann, the Pfeiffer-Kolle or the Vincent (ether) method was first used. With these vaccines three successive injections, at intervals of one week, were necessary. This proved inconvenient for several reasons: the immobilization of troops for a certain number of days on three separate occasions; the difficulty of getting all the men to submit to all three vaccinations, and the necessity of enduring the reaction phenomena three times. The lipovaccine proposed by Le Mignic was therefore adopted in a ministerial circular of February, 1920. By this method, only one injection is given the troops, and this soon after they enter the service, or about thirty days after the vaccination against smallpox. The adjoined table shows incidence of typhoid per thousand effectives during the last twenty-five years:

1899	5.4	1908	3.2	1917	2.6
1900	6.2	1909	1.3	1918	1.3
1901	5.2	1910	1.9	1919	0.2
1902	4.1	1911	4.0	1920	0.5
1903	4.1	1912	7.1	1921	2.8
1904	4.4	1913	7.1	1922	2.7
1905	5.1	1914	8.5	1923	2.5
1906	4.4	1915	17.9	1924	4.0
1907	3.1	1916	1.2		

These figures give rise to certain epidemiologic considerations. The war with Libya and the World War (particularly during 1914 and 1915) lowered organic resistance of the soldiers, and added to sources of infection and contagion. However, the results of antityphoid vaccination during the war with Libya were good, for the morbidity among the nonvaccinated troops was 35.3 per thousand and that of the vaccinated was 7.2 per thousand (Ferrero di Cavallerleone). Also during the recent war, vaccination and revaccination lowered the morbidity rate from 17.9 to 1.3 per thousand. These results may be attributable not solely to vaccination but in part to the hygienic measures that were instituted.

But the foregoing morbidity table reveals that during the last four years the proportion of men contracting typhoid (1921, 2.8 per thousand; 1922, 2.7; 1923, 2.5, and 1924, 4.0) has increased. Since there has been no slackening in the campaign against typhoid in the army, it is difficult to explain this increase. Professor Memmo, however, has observed a sort of decennial rhythm in the incidence of the disease during the last quarter century. The disease abated from 1900 to 1909 (from 6.2 to 1.3 per thousand), increased during the following decade, aggravated by the exigencies of war, and again abated to a morbidity rate of 0.2 per thousand in 1919. Since 1919 there has been a slow upward trend. The causes for this rhythmic movement (which may be noted in almost all infectious diseases) may be sought in several circumstances: immunity, predisposition of the organism, conditions of time and place, pathogenic action of the micro-organisms, and vehicles of the epidemic.

Cursory examination of the morbidity statistics seems to indicate that antityphoid vaccination has not exerted any beneficent influence on this periodicity. But it will be seen that the minimum has been reached only since the introduction of antityphoid vaccination, while the maximum was the direct result of the World War.

We have not as yet exact data for comparison of morbidity among the vaccinated and nonvaccinated. The statistics of 1921 reveal that in that year there were 335 cases of typhoid among the vaccinated troops and 316 cases among the nonvaccinated. Since the number of men not vaccinated, though it does not represent the total number under arms, is certainly much greater than the number of vaccinated, among the vaccinated the morbidity should have been less and higher among the nonvaccinated, assuming that the number exposed to typhoid was approximately the same in the two classes.

BERLIN

(From Our Regular Correspondent)

Sept. 12, 1925.

Gratuitous Treatment of Colleagues

Since time immemorial German physicians have accorded gratuitous treatment to colleagues and their families. What was at first a usage has come to be regarded in many quarters as a duty, with the result that many societies have designated it as such in their by-laws. Under present economic conditions, it seems inadvisable to continue the custom. In several articles that appeared in the *Deutsche medizinische Wochenschrift,* nearly twenty years ago, Professor Schwalbe, the editor, indicated some disadvantages arising out of the custom and asserted that gratuitous treatment of colleagues should not be regarded as an unquestionable right. The disadvantages affect both the physicians and their patients. Now that the number of specialists has so increased, and they are so often called to advise general practitioners, though the opposite is seldom true, we can scarcely speak of exchange of services. Numbers of physicians accept treatment of specialists or consult authorities. With some specialists these colleagues constitute a considerable portion of their patients, so that gratuitous treatment of colleagues deprives the specialists of appreciable portions of their incomes. Gifts of wine, foodstuffs and other articles by no means make up the loss of cash fees. On the other hand, it must be painful for a practitioner or his family to accept the services of a colleague without an opportunity to pay him. In view of present economic conditions, it is pardonable that specialists and consultants, when colleagues unknown to them seek their services, do not find time for them so readily as for paying patients. For these reasons, physicians often prefer not to mention their profession when in need of treatment.

Recently Dr. Schwalbe in the *Wochenschrift* reopened the question in connection with a case which has proved the unsoundness of the principle of gratuitous treatment of colleagues. An ophthalmologist treated a physician in Rhenish Prussia for grave iritis. The specialist claimed that he had visited his colleague's residence at least twenty times and that the patient had come to his office at least 300 times. When he demanded 1,700 marks for professional services, the patient refused. In court, the plaintiff asserted that not only was the alleged number of visits and consultations erroneous and the amount demanded unjust, but also that it was the custom for physicians to treat one another gratuitously. The court asked the *Aerztekammer* (chamber of physicians) of the district whether this was customary among physicians, and also whether specialists usually treat colleagues without charge even though the case is protracted. The *Aerztekammer* answered in the affirmative, whereupon the court rejected the petition of the ophthalmologist, citing as authority the *Bürgerliche Gesetzbuch* (civil code of laws). Schwalbe demands that *Der deutsche Aerztetag* or at least the Prussian *Aerztekammernausschuss* announce that gratuitous treatment by colleagues no longer be regarded as a professional custom or duty, not only in the interests of the attending physicians but also for the benefit of the colleagues or their families in need of treatment. He refers to an utterance of *Oberreichsanwalt* Ebermayer, a collaborator of the *Wochenschrift* on subjects of jurisprudence, who advises that physicians cease to accord one another gratuitous treatment, because it is not in keeping with the present changed conditions. It should be left to the attending physician to decide, in each case, whether or not he shall require a fee.

Regulations Governing the Sale of Canned Milk

In recent years, there have been repeated alleged grievances in connection with the sale of canned milk. Analysis revealed a fat content ranging between 6.4 and 8.1 per cent. Four samples, after they had been diluted in accordance with the printed directions, yielded solutions of which the content in dry milk substance was much less than that of ordinary milk. Five samples of condensed milk of various origin yielded fat content between 7 and 14 per cent. Differences in price of the various brands corresponded in a general way to variations in fat content. The dilution recommended in printed directions on a can of condensed milk is, as a rule, the only indication to the purchaser as to the degree of evaporation of the product and is therefore a criterion of its value. The buyer expects that if he dilutes the canned product according to directions he will secure an equivalent of ordinary milk.

Samples of canned milk were purchased in different stores and it was observed that some foreign products with foreign labels were merely plain sterilized milk and in other cases condensed partially skimmed milk. Both, however, were sold under the name "condensed milk." One shop advertised condensed partially skimmed milk as "condensed milk" and sold condensed whole milk as "cream." Another shop designated condensed whole milk as "Libby's cream."

These deceptions can be combated from various angles: through the law pertaining to the sale of foodstuffs, on the basis of the penal code (*Strafgesetzbuch*), the law against unfair competition, and, in most cases, on the basis of misleading statements made on the containers of foodstuffs (act of June 26, 1916). A new draft of the law pertaining to the sale of provisions is being prepared, and it is thought that this will deal with the sale of canned milk.

Marriages

Richard Reinoehl Gates, Lebanon, Pa., to Miss Anna S. Groth of West Philadelphia, August 20.

Leo Edward Stenger, Logan, Ohio, to Miss Hazel Jeanette Smith of West Jefferson, September 8.

Clarence Lu Verne Smith of Iowa City to Miss Marion MacKenzie of Muscatine, Iowa, July 11.

Milton B. Galloway to Miss Ethelle Eugenia Richards, both of Webster City, Iowa, August 6.

John F. Veltman, Holland, Mich., to Miss Esther L. Jongewaard of Ames, Iowa, recently.

Richard Martin Rutledge, Peoria, Ill., to Miss Dorothy Phillips of Delavan, September 19.

Daniel Greenlee Caldwell, Brooklyn, to Miss Ivey Tille Bets of Chester, Pa., June 6.

Harold Leon Goldburgh to Miss Hortense Pearlman, both of Philadelphia, August 2.

Maxwell H. Thurm to Miss Dorothy Raphael, both of Brooklyn, September 6.

Richard M. Brickner to Miss Ruth Helen Pilpel, both of Brooklyn, July 1.

Deaths

Eugene Robert Kelley ⊕ Commissioner of Public Health of Massachusetts, committed suicide at his home in Boston, September 27, aged 42. Dr. Kelley graduated from Johns Hopkins University Medical Department, Baltimore, in 1906; from 1909 to 1911, he was assistant commissioner of health of the state of Washington and commissioner of health from 1911 to 1915. He was then appointed director of the division of communicable diseases of the Massachusetts State Health Department, and in 1918 was appointed commissioner. Dr. Kelley was secretary of the Conference of State and Provincial Health Authorities of North America, from 1916-1919; president of the conference, 1921-1922, and president of the Massachusetts Conference on Social Work, 1923-1924.

John Wheelock Elliot, Boston; Medical School of Harvard University, Boston, 1878; member of the Massachusetts Medical Society and the American Surgical Association; clinical instructor of gynecology, 1888-1889, and lecturer on surgery, 1900-1905, at his alma mater; formerly on the staff of the Free Hospital for Women, Brookline, and the Massachusetts General Hospital; aged 72; died, September 17, at his home in Needham, Mass.

Earl Warren Presley ⊕ Staten Island, N. Y.; University and Bellevue Hospital Medical College, New York, 1912; president and formerly secretary of the Richmond County Medical Society; served in the M. C., U. S. Army, during the World War; on the staffs of the Richmond Memorial, Seaside and Seaview hospitals; aged 36; died, September 15, at the Staten Island Hospital, following an operation for stricture of the intestine.

Thomas McC. Lippitt ⊕ Lieutenant (j. g.), U. S. Navy, retired, Berryville, Va.; University College of Medicine, Richmond, 1897; entered the navy as an assistant surgeon, July, 1898, and was retired from active service September 25, 1902, as a result of injuries received during the Boxer rebellion in China in 1900; aged 52; died suddenly, September 16, of heart disease.

Thomas Jefferson Stout ⊕ Brinkley, Ark.; University of Nashville (Tenn.) Medical Department, 1901; past president and secretary of the Monroe County Medical Society; proprietor of a hospital bearing his name; at one time secretary of the Arkansas State Board of Medical Examiners; aged 52; died, August 30, of a bullet wound, presumably self-inflicted.

James M. Inge ⊕ Denton, Texas; Louisville (Ky.) Medical College, 1874; past president of the State Medical Association of Texas; formerly lecturer on regional anatomy at Baylor University College of Medicine, Dallas; aged 73; died, September 9, at a sanatorium in Dallas, of septicemia.

Milton Henry Edens ⊕ Anadarko, Okla.; University of Georgia Medical Department, Augusta, 1902; served in the M. C., U. S. Army, during the World War; aged 52; died, September 11, at the Wesley Hospital, Oklahoma City, of uremia, following an operation for appendicitis.

Frank Beresford Crowe ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1902; for many years chief resident physician to St. Joseph's Hospital, Reading; aged 48; died, September 12, at the National Stomach Hospital, following an operation.

John Brice Cressinger ⊕ Sunbury, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1896; health officer of Sunbury; formerly member of the city council; on the staff of the Mary M. Packer Hospital; aged 53; died, September 16.

Eli Butler Ives ⊕ Bridgeport, Conn.; Yale University School of Medicine, New Haven, 1903; past president and secretary of the Fairfield County Medical Society; on the staff of the Bridgeport Hospital; aged 47; died in September.

Henry M. Miles ⊕ Norton, Va.; Louisville (Ky.) Medical College, 1890; member of the state board of health; specialized in ophthalmology, otology, laryngology and rhinology; aged 57; was found dead in bed, September 8.

William La Fayette Mullin, Society Hill, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1900; member of the Medical Association of the State of Alabama; aged 47; died, September 8, following an operation.

John Nelson Sprowls ⊕ Claysville, Pa.; Jefferson Medical College of Philadelphia, 1877; for thirty-three years surgeon to the Baltimore and Ohio Railway; aged 73; died, September 11, of carcinoma of the spleen.

Paolo Virdone ⊕ Brooklyn; University of Naples, Italy, 1899; formerly on the staff of the Wyckoff Heights Hospital; aged 50; was drowned at sea, September 7, when he jumped overboard en route to Italy.

Katherine J. Mackay Mackenzie, Port Coquitlam, B. C., Canada; Dalhousie University Faculty of Medicine, Halifax, Nova Scotia, 1895; aged 55; died recently, at New Westminster, of septicemia.

John Richmond Pratt, Manchester, N. Y.; Jefferson Medical College of Philadelphia, 1851; member of the Medical Society of the State of New York; aged 99; died, September 13, of senility.

John Knight Bucklyn, Jr., Mystic, Conn.; New York Homeopathic Medical College and Hospital, New York, 1887; aged 60; died, September 16, of heart disease and diabetes mellitus.

Frank Herrick Newland ⊕ Clifton Springs, N. Y.; Cleveland Homeopathic Medical College, 1902; county coroner; member of the board of education; aged 52; died suddenly, September 16.

Harold James Levis, Long Island City, N. Y.; University of Michigan Medical School, Ann Arbor, 1902; aged 47; died, September 11, at the Roosevelt Hospital, New York, of pneumonia.

Nathaniel L. Whipple, Nevada, Mo.; Washington University Medical School, St. Louis, 1865; member of the Missouri State Medical Association; aged 86; died, September 12, of senility.

Grover Cleveland Back, Perkins, Mo.; National University of Arts and Sciences Medical Department, St. Louis, 1916; aged 38; was killed, September 10, in an automobile accident.

Charles Ray Smith, Carthage, Ohio; Eclectic Medical College, Cincinnati, 1921; at one time on the staff of the Bethesda Hospital, Cincinnati; aged 33; died in September.

Jerry A. Replogle, Udell, Iowa; State University of Iowa College of Medicine, Iowa City, 1898; member of the Iowa State Medical Society; aged 66; died, September 18.

Jonas B. Spitler, Yukon, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 72; died, August 23, at El Reno, of acute cystitis and prostatitis.

Encinas C. Callison ⊕ Kirksville, Mo.; Kentucky School of Medicine, Louisville, 1889; aged 59; died, September 14, at the Grim-Smith Hospital, of pneumonia.

Emanuel Stuver ⊕ Fort Collins, Colo.; Medical College of Ohio, Cincinnati, 1880; on the staff of the Fort Collins Hospital; aged 69; died, September 12.

Frank E. Corrigan, Louisville, Ky.; University of Louisville School of Medicine, 1872; aged 74; died, September 16, of cerebral hemorrhage.

Roscoe Hill ⊕ Pittsfield, N. H.; Bellevue Hospital Medical College, New York, 1882; aged 68; died, July 5, at Concord, of angina pectoris.

Jonathan Rider Powell, Cambridge, Mass.; University of Vermont College of Medicine, Burlington, 1888; aged 60; died, September 8.

Joseph Singer Halstead, Breckenridge, Mo.; Kentucky School of Medicine, Louisville, 1840; aged 107; died, September 13.

Erasmus McGinnis, Bismarck, Mo.; Marion-Sims College of Medicine, St. Louis, 1896; aged 54; died suddenly, September 8.

Joseph W. Edwards, Mendota, Ill.; Rush Medical College, Chicago, 1854; Civil War veteran; aged 93; died, September 8.

James Bernard Buckley, Philadelphia; Cleveland-Pulte Medical College, 1912; aged 45; died, September 10, of heart disease.

William Thomas Kendrick, Montgomery, Ala.; Atlanta Medical College, 1876; aged 70; died, September 6, at Selma.

Isaac Louis, New York; Medical School of Harvard University, Boston, 1885; aged 63; died suddenly, September 21.

John Henry Speer, Crestwood, Ky.; University of Louisville School of Medicine, 1864; aged 85; died, September 14.

George William Reid, Albion, Ill.; Physio-Medical Institute, Cincinnati, 1884; aged 65; died, September 6.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

ANACIN

The Birth and Development of a "Patent Medicine"

Anacin is a "patent medicine" marketed by the Heidbrink Company of Minneapolis. The Heidbrink concern is not primarily in the "patent medicine" business, but is listed as manufacturers of dental supplies; in fact, Dr. J. H. Heidbrink, its president, is a dentist. Some of the claims made for Anacin are:

> "Quickly relieves Headache, Toothache, Earache, Colds, Flu, Grippe, Neuritis, Neuralgia, Pain, Rheumatic Pains."
>
> "Doctors Recommend It. Prescribed Ten Years by Doctors and Dentists Everywhere."
>
> "Morning-After Headaches. That splitting, blinding, 'morning after' headache goes quickly after taking the safe Anacin tablets prescribed by physicians."
>
> "No bad after-effect on the heart"
>
> " . . . a *non-habit forming compound*."

More than five years ago a physician wrote, asking for information regarding the composition of Anacin. This was the first inquiry about and the first record The Journal had of the product. This was in April, 1920. In November, 1920, the Council on Pharmacy and Chemistry received a letter from the Heidbrink Company stating that the concern was considering the possibility of putting out certain medicinal preparations and desired to conform to the rules of the Council not only in the preparation and naming of the products but also in their marketing. The company requested that information be sent it that would allow it to act intelligently in the premise. The official rules of the Council were sent to the company and it was told that should further information be desired, it would be furnished. This was nearly five years ago. So far the Heidbrink Company has not submitted any product to the Council for inclusion in "New and Nonofficial Remedies."

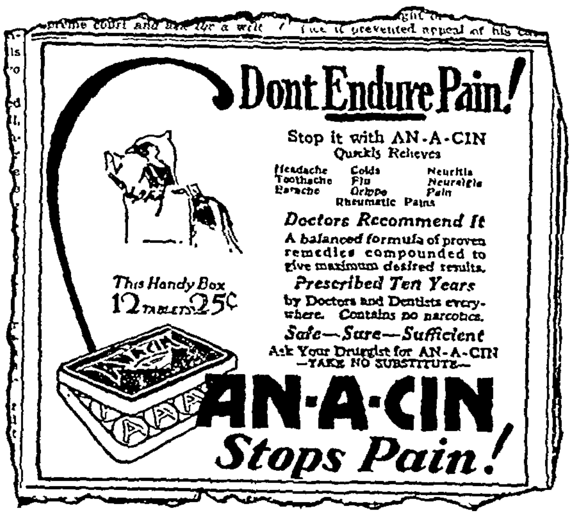
In August, 1922, Dr. F. W. Wittich of Minneapolis sent two bottles of Anacin—one bottle marked "Anacin spoiled" and the other marked "Anacin fresh"—to the American Medical Association. The doctor stated that Anacin was a tablet made by a wholesale manufacturing concern of Cleveland for the Heidbrink Company of Minneapolis, and had the following formula:

Acetphenetidin (Phenacetin)	3 grains
Acetylsalicylic acid (Aspirin)	3 grains
Quinin sulphate	⅓ grain
Citrated Caffein	⅓ grain

Dr. Wittich explained further that Anacin, which had been on the market locally for two years, had been used extensively by him whenever the salicylates were indicated. Recently a bottle that he had purchased showed deterioration and Dr. Wittich asked for a possible explanation of such spoilage. He was told that it seemed probable that the tablets had decomposed, due to the action of citric acid (in the citrated caffein) on the acetylsalicylic acid with the formation of free acetic acid. He was told further that citrated caffein had no advantage over the alkaloid except that the citric acid renders the caffein more soluble.

It was suggested to Dr. Wittich that, in the interest of rational therapy, instead of prescribing a "patent medicine" sold under a non-descriptive name, he determine whether the effect from the nostrum might not be secured from the administration of aspirin alone, and if not, that he find out which of the other constituents affected the action of the acetylsalicylic acid. No reply was received to this letter, but soon thereafter the formula of Anacin seems to have been changed and caffein alkaloid was used instead of citrated caffein.

A physician who recently wrote to the Heidbrink Company for information regarding Anacin received a letter from J. A. Heidbrink, D.D.S., declaring that "the Anacin formula was worked out by Dr. F. W. Wittich and his associates at the University of Minnesota Medical Department, where he had a professorship." Dr. Heidbrink also enclosed some mimeographed sheets giving what he described as "Dr. Wittich's statement concerning Anacin and its ingredients." This description mentioned that the tablet contained aspirin, acetphenetidin, quinin sulphate and caffein alkaloid but gave no information regarding the proportions of these ingredients. The same is true regarding the circular in the trade package. As under the federal law the amount of acetphenetidin has to be declared, these figures are on the small vest-pocket tin in which Anacin is sold, namely: that it contains 187 grains of acetphenetidin to the ounce. As the weight of the individual tablet is not given it necessitates a careful weighing of the tablets to determine from this the amount of acetphenetidin in each tablet. The mimeographic description ascribed to Dr. Wittich contains several statements that are without scientific foundation and also references to work that has long since been shown to be fallacious.



Dont Endure Pain!

Stop it with AN-A-CIN
Quickly Relieves
Headache Toothache Earache Colds Flu Grippe Neuritis Neuralgia Pain Rheumatic Pains

Doctors Recommend It
A balanced formula of proven remedies compounded to give maximum desired results.

Prescribed Ten Years
by Doctors and Dentists everywhere. Contains no narcotics.

Safe—Sure—Sufficient
Ask Your Druggist for AN-A-CIN
—TAKE NO SUBSTITUTE—

This Handy Box
12 TABLETS 25¢

AN-A-CIN
Stops Pain!

Photographic facsimile (reduced) of a typical Anacin newspaper advertisement.

Here then we have the spectacle of a reputable member of the medical profession developing a "patent medicine" and allowing it to be put on the market for the indiscriminate sale to, and the uncritical use of, the public.

Correspondence

PHYSICAL THERAPY ABROAD

To the Editor:—Many American physicians are still in doubt as to the value of physiotherapy; on the other hand, a growing group of physicians have permitted their enthusiasm to get the better of their more sober judgment. Various electrical agents are in evidence in most of the important clinics of Europe. Galvanization is practiced both as a diagnostic and as a therapeutic agent. Hydrotherapy and heliotherapy are much in vogue at the various spas. Diathermy and ultraviolet therapy enjoy popularity both on the continent and in England, owing to the good results obtained by these agents during the war and the period of reconstruction. Ultraviolet, especially, is accepted with a greater degree of enthusiasm, owing, no doubt, to the splendid researches of such men as Hausser of Berlin, Davos of Dorno, and Hausmann of Vienna.

In England, the University of Cambridge offers a six months' course with a diploma in both radiology and physiotherapy. The didactic part is taught by Dean Scales at Cambridge, while the practical end is given at the clinics of the St. Bartholomew's and London general hospitals by Dr. Cumberbatch. The influence of Finsen is much in evidence in England because the carbon and tungsten arc lamps are the methods of choice for ultraviolet irradiation. Leonard Hill and his associates at the National Institute for Medical Research have been important factors in advancing light therapy to a more scientific basis in England, by their many original investigations in recent years.

France still has the living inspiration of d'Arsonval, the discoverer of the high frequency currents. Physiotherapy is a popular and accepted specialty, and much opportunity for study and work can be found at the Salpêtrière and Pitié hospitals. The aged d'Arsonval is a much honored man and occupies the professorial chair of medicine in the Collège de France. Paradoxically, while some of the earliest and best investigation in ultraviolet therapy was done in France by M. Henri, it is not much in evidence as a therapeutic agent.

Vienna and Berlin are in apparent agreement as to the choice and importance of the various types of the physical agents. Hydrotherapy is extensively used, and much space is devoted in the various hospitals to the many varieties of baths. Radium emanation and extract of pine baths enjoy much favor at the Kaiser-Jubiläum Hospital in Vienna and at the Rudolph Virchow Hospital in Berlin. Mud packs, called "Fango" baths, are also popular and in great evidence. Diathermy and the galvanofaradic types of currents are in constant use. The Jubiläum Hospital averages about 260 patients a day in the department of physical therapy, and monthly courses are offered to the visiting physician.

Nagelschmidt is the outstanding physician in Berlin in physiotherapy. The word "diathermy" is of his own coinage, and all that is known of the practical action of this current can be largely attributed to his investigations. He actively practices and teaches physiotherapy at his own hospital, and one hears at his clinic a babel of tongues from visiting physicians from all corners of the earth. At the Charité Hospital, Prof. C. Adams is in charge of the extensive division of physical therapy, while at the Rudolph Virchow Hospital, Laqueur is at the head of the department—by far the largest of its kind in Berlin. Courses of a month or longer are offered to visiting and graduate physicians. Berlin, however, is an expensive place at present.

Disraeli Kobak, M.D., Chicago.

IVY POISONING: ITS PREVENTIVE TREATMENT

To the Editor:—In The Journal, August 8, page 456, McNair critically reviews our report on the preventive treatment of ivy poisoning. As I directed the studies which, he says, should have been "more scientifically conducted," the duty is mine to point out wherein McNair has not quite grasped the situation.

McNair is the author of a monographic treatise on *Rhus* dermatitis which covers all its phases and includes much original work; apparently he has not perceived the difference between the scope of a monograph and a report like ours, designed to be printed in a publication such as The Journal. Our communication reported our facts to the general medical practitioner, facts of which the doctor could avail himself in his approach to the problem of human welfare. Findings of more abstruse scientific interest could be pointed out only in passing. We did not pretend to exhaust all the ramifications—indeed, it is doubtful whether The Journal could spare us space for the more extensive style of publication.

With these circumstances in mind, most of McNair's objections are disposed of at once. 1. It was quite unnecessary to use "definite quantities of the poison" in our work, as McNair would have us do. We were not interested in the percentage concentration of the virus that would induce dermatitis—the leaves and bark were tools sufficient unto us, since we were interested primarily and solely in inducing a dermatitis. Indeed, leaves and bark were preferable in our attempt to approach natural conditions as closely as possible. 2. Similarly, determination of the respiration rate, hematology, etc., were all beside the point. They were not pertinent to our phase of the subject. It would have been interminable to have essayed all the chemical and physiologic appendixes of the subject. 3. "Minimal toxic doses," as McNair recommends, would have been interesting—certainly a harmless amusement. We submit, however, that they did not require determination, because our problem was not a quantitative one. In our work only two values were concerned, one before, and the other after treatment. Hence comparative values were quite sufficient of determination. Quantitative ones were unnecessary.

There are three other criticisms that are not disposed of under our foregoing plea of "not monographic." 1. We claimed, as a new finding, that local immunity was not developed by repeated attacks of ivy poisoning. In contradiction, McNair properly calls attention to facts recorded in his monograph which clearly established priority for others *for those facts as facts.* Those facts were not interpreted by McNair, however, into the generalization that we brought out: they were part of and submerged in a running discussion of the general subject of immunity. Our intent was not to attract credit to ourselves but attention to the subject of immunity as it obtains locally. 2. McNair discusses our statement that there is probably no such thing as absolute immunity against *ivy poisoning.* In doing this he does not distinguish between (1) the artificial ivy virus and (2) ivy poisoning; i. e., between an experimental substance and the natural disease with which we are concerned. Thus, he would have us "try the poison highly concentrated and purified," etc. We were not interested in the tissue reaction against concentrated virus—only against concentrations approximate to those occurring in nature.

There are other minor criticisms which are not vital to the subject and which cannot be covered short of extensive description of the premises. As it stands, while we experience a certain sense of flattery at having drawn the lightning of Jove, we also feel some disappointment that he should not have recognized the scope of our experiments before going into print.

We still feel that our experiments and communication were of more service to the general medical public as rendered than if obscured by the multiple qualifying phases and scientific experimental appendixes such as have their very proper place in the monographic form of presentation.

Fred D. Weidman, M.D., Philadelphia.

OVA OBTAINED BY DUODENAL LAVAGE

To the Editor:—There has just come to my attention a letter written by Dr. R. S. Preston, Richmond, Va., published in The Journal, April 4, and requesting references on the subject of ova obtained by duodenal lavage. You replied that you were unable to find such a report in the literature.

While working on hookworm infected soldiers I found that the ova could occasionally be aspirated through the duodenal tube. These observations were published in the *Military Surgeon* **46**:507-513 (May) 1920. Perhaps I might also mention that the tube treatment of uncinariasis previously described in The Journal, Oct. 18, 1919, p. 1181, and in the *American Journal of the Medical Sciences* (**159**:497 [April] 1920) has continued to give superior results—in the way of *complete* parasite removal—in the hands of all those who have employed it, whether in military or in civilian practice.

John L. Kantor, M.D., New York.

AMERICAN ASSOCIATION FOR MEDICO-PHYSICAL RESEARCH—A DISCLAIMER

To the Editor:—Following is a statement relative to that portion of your article on the association mentioned which relates to me: I was not aware that my name appeared on the program of the American Association for Medico-Physical Research. If this occurred, it was wholly without my consent. I did not appear before the meeting in question. For entirely reasons personal, I cannot at this time disclose the history of my early scientific studies and graduation in medicine. Accordingly I shall discontinue the use of the title. I have not attempted to practice medicine but have devoted myself to researches in electromagnetic energies and their application to the problem of human welfare.

A. J. Pacini, Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HOLZKNECHT ROENTGEN-RAY UNIT

To the Editor:—Recently in reading an article dealing with the therapeutic uses of the roentgen ray, I came across the term "Holzknecht" as a unit of measurement of the strength of the ray. I think it is a German term. Can you inform me as to its meaning?

E. H. Gish, M.D., Philadelphia.

Answer.—A Holzknecht unit is a unit of roentgen-ray dosage equal to one-fifth the erythema dose. A chemically prepared pastil is exposed at half the distance from the tube to the part under treatment, and the application is continued until the pastil has changed color to correspond with 1, 2, 3, 4, or possibly 5 of the color scale. This indicates that the irradiation has amounted to a corresponding number of Holzknecht units.

TOXICITY OF PYRIDIN, BENZENE, ALCOHOL —DENATURED ALCOHOL NO. 8

To the Editor:—Please give me any information on possible chances of so-called industrial poisoning from inhalations of fumes from a still containing denatured alcohol No. 8 (100 gallons of alcohol containing 1 gallon of pyridin base and 1 gallon of benzene). The case is that of a chemical worker inhaling fumes from a leaking still. Please do not publish my name.

H. E. W., M.D., Connecticut.

Answer.—In plants making denatured alcohol on a large scale, there should be such adequate protective measures that the workers are not dangerously exposed to the fumes; the closed pipe system's should be employed from the standpoint both of health and of economy (lack of waste). In large plants, therefore, one would expect acute poisoning rather than chronic poisoning, as when a break occurs in the system. In plants where the liquids are permitted to volatilize to a certain extent in the air, chronic poisoning would be expected.

The toxicology of alcohol is so well known that it needs no discussion.

Pyridin (and denatured alcohol containing pyridin) has been reported to cause an eczematous condition of the skin (Industrial Health, Kober and Hayhurst, 1924, p. 509).

Benzene (benzol) is the most toxic agent in Formula 8. Acute cases of poisoning due to benzene are of such striking character that they usually attract the attention of the physician. The chronic case, however, is often completely overlooked, especially in those plants not employing a physician, until some acute exacerbation takes place (which applies particularly to plants using open processes). Benzene is a narcotic which, when swallowed and inhaled, produces vertigo, delirium and tonic convulsions followed by deep sleep. According to Dr. Alice Hamilton, symptoms caused by inhalation in animals point to a poison with a selective action on the central nervous system, as (in order of their appearance) muscular tremors, salivation, violent twitchings, exhaustion, paralysis, narcosis, respirations first quick and then slow, rapid pulse and low temperature. "In some cases of chronic poisoning in man, petechial spots, due to small hemorrhages, have been observed. These spots have been attributed to fatty degeneration of the blood vessels. It produces leukocytosis followed by leukopenia, with an occasional increased number of erythrocytes. Larger amounts may produce an aplastic anemia. It has been stated that the aplastic anemia is due to a contamination of the drug with nitrobenzene or anilin" (New and Nonofficial Remedies, 1925, p. 66). In a study of benzene on certain aspects of metabolism, F. P. Underhill and B. R. Harris of Yale (*J. Indust. Hyg.*, March, 1923, p. 499) show that benzene exerts a catabolic influence on body tissues as a whole, as manifested by a sharp rise in the elimination of both creatin and total nitrogen. In all cases the end-results were the same; that is, all rabbits showed a leukopenia of varying degree. The New York State Industrial Commission in its *Bulletin* for November, 1920, reports two cases in men employed in an atmosphere containing benzene, who developed purpura hemorrhagica. This condition has also been reported by others. In the Second Progress Report of the Subcommittee on Benzene, National Safety Council, Oct. 3, 1924 (this and the first report may be obtained from the National Safety Council, 168 North Michigan Avenue, Chicago), the committee states that the white blood cell count is the most important early diagnostic sign of benzene poisoning. Out of a group of eighty-four workers employed in processes involving more or less continuous exposure to benzene vapors, 15 per cent. showed a white blood cell count so low as to be strikingly suggestive of chronic poisoning, indicating that besides the obvious clinical cases there exists in the industry a considerable amount of mild undetected poisoning of this type. In the opinion of this committee, the symptoms of chronic benzene poisoning (excluding the blood count) are of little value; dizziness is the most frequent symptom and pallor the most usual physical finding. The committee report also discusses a proposed method to determine the concentration of benzene in the atmosphere.

For prevention, local exhaust ventilation at the point of origin of vapors appears to be a highly efficient procedure.

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CALCIUM THERAPY IN TUBERCULOSIS

To the Editor:—What value has the calcium saturation therapy of tuberculosis, if any? Please use initials only.

E. G. C., Ohio.

ANSWER.—As is stated in "Chemistry of Tuberculosis" by Wells, De Witt and Long (Williams and Wilkins Company, Baltimore, 1923), "the theory that tuberculosis is accompanied by, and perhaps dependent upon, a demineralization and especially a loss of calcium from the body, has not been supported by the best controlled investigations. There is no acceptable evidence that there is any decrease in the amount of calcium in either the blood or the tissues in tuberculosis. . . . We have no evidence that the calcium deposition in tuberculous lesions causes them to stop progressing; it is more probable that calcification *follows* the healing of human tuberculous lesions." Animal experimentation with intravenous injections of relatively large quantities of calcium chlorid solution has not been convincingly positive, and is generally negative in its result. Thus, Masini's (*Schweiz. med. Wchnschr.* **51:**223, 1921) tuberculous rabbits given 1 c.c. of 1 per cent. calcium chlorid solution intravenously twice a week lived from seventy-five to 120 days, while the controls lived from sixty-eight to 116 days.

Though a number of clinicians endorse the use of calcium compounds as giving definite clinical benefit, the enthusiastic opinion of the few has not been corroborated by the experience of the many.

ROENTGEN-RAY STERILIZATION

To the Editor:—1. In how many per cent. of the cases is roentgen-ray sterilization of men (and of women) of permanent effect? 2. Are five erythema doses of roentgen ray, given to an individual of 19 years and directed to the scrotum, able to produce sterility? (This treatment was given for erythema of the scrotum.) 3. About how many roentgenologists who were sterile as a result of the influence of the rays became fertile again? 4. Does roentgen-ray sterilization affect the libido? 5. Is there any treatment for roentgen-ray sterilization in the male?

K. B., New Jersey.

ANSWER.—1. While there are no exact statistics available, it may be stated that in most of the cases the sterilization is only temporary. The time of recuperation depends on the intensity of the treatment and on the individual constitution.

2. The treatments cited are apt to produce sterility, though the age of the patient offers a good chance for recovering the power to produce live spermatozoa.

3. This question is answered under 1.

4. Neither roentgen-ray nor operative sterilization necessarily affects the libido.

5. There is no specific treatment for roentgen-ray sterility in the male. Absolute removal from the influence of roentgen rays and general hygienic measures are essential.

THIOFLAVINE AND ACRIFLAVINE

To the Editor—The Epitome of Current Medical Literature (*British Medical Journal*, Aug. 15, 1925, p. 20) contains an abstract on "Chemical Substances Inhibiting Growth of the Tubercle Bacillus." The original paper of L. Karwacki and S. Biernacki appeared in the *Annales de l'Institut Pasteur.* They suggest that the most active substance of all—thioflavine—should be tested pharmacologically. It seems to me a very important research. How does thioflavine differ from acriflavine and other flavines, which we have been using during the last several years?

SAMUEL GINSBURG, M.D., Buffalo.

ANSWER.—Thioflavine is one of many yellow dyes that have been used in the arts for years. In 1888, two process patents for its manufacture were issued by the German Empire (to the Casella Company). The names of the various compounds ending in "flavine" are of commercial appelation and have no scientific generic basis, the "flavines" being yellow dyes. Acriflavine connotes a yellow derivative of acridin; thioflavine means a yellow substance containing sulphur. Other "flavines" have names coined in the same manner. Chemically, thioflavine is methyl dehydrothio-*p*-toluidine sulphonate. Acriflavine (the base) is diamino-methyl-acridinium chlorid. The two substances, therefore, are not closely related chemically, and from a chemical standpoint it would not be logical to predict the pharmacologic properties of thioflavine from the known actions of acriflavine.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 19. Sec., Dr. H. W. Loeb, 1402 South Grand Blvd., St. Louis, Mo.

ARIZONA: Phoenix, Oct. 6-7. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

ARKANSAS: Little Rock, Nov. 10-11. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville.

CALIFORNIA: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, Oct. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, Nov. 10. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 13. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

FLORIDA: Tallahassee, Oct. 13-14. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.

GEORGIA: Atlanta, Oct. 13-15. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Oct. 12-15. Sec., Dr. Guy C. Milnor, 401 Beretania St., Honolulu.

IDAHO: Boise, Oct. 6. Commissioner of Law Enforcement, Mr. F. A. Jeter, Boise.

ILLINOIS: Chicago, Oct. 6-8. Director, Mr. A. M. Shelton, Capitol Bldg., Springfield.

IOWA: Des Moines, Oct. 14-16. Dir. of Examinations and Licenses, Mr. H. W. Grefe, Des Moines.

KANSAS: Topeka, Oct. 13. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 10-12. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

MICHIGAN: Lansing, Oct. 13-15. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

MINNESOTA: Minneapolis, Oct. 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Oct. 27-30. Sec., Dr. James Stewart, Jefferson City.

MONTANA: Helena, Oct. 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEVADA: Carson City, Nov. 2. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 20-21. Sec., Dr. Alex. Macalister, Trenton Trust Bldg., Trenton.

NEW MEXICO: Santa Fe, Oct. 12-13. Sec., Dr. W. T. Joyner, Roswell.

PHILIPPINE ISLANDS: Manila, Nov. 10. Sec., Dr. Jose V. Gloria, 686 Rizal Ave., Manila.

SOUTH CAROLINA: Columbia, Nov. 10. Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

UTAH: Salt Lake City, Oct. 6. Director of Regis., Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, Oct. 13. Sec., Dr. W. T. Henshaw, Charleston.

WYOMING: Cheyenne, Oct. 5-7. Sec., Dr. G. M. Anderson, State Capitol, Cheyenne.

Iowa June Examination

Mr. H. W. Grefe, director of examinations and licensure, Iowa Board of Medical Examiners, reports the written examination held at Iowa City, June 4-6, 1925. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seventy-five candidates were examined, all of whom passed. Fourteen candidates were licensed by reciprocity. One candidate was licensed by endorsement of credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Illinois College of Medicine	(1925)	87.1, 92.9*
State University of Iowa College of Medicine	(1925)	83.4, 83,5, 84.6, 85.1, 86, 86.5, 86.6, 86.8, 86.9, 87, 87.1, 87.4, 87.4, 87.4, 87.4, 87.5, 87.5, 88, 88, 88.1, 88.4, 88.5, 88.7, 88.9, 88.9, 89, 89, 89.1, 89.1, 89.4, 89.5, 89.6, 89.6, 89.7, 89.7, 89.9, 90, 90, 90, 90, 90.1, 90.1, 90.1, 90.6, 90.6, 90.7, 90.7, 90.7, 90.7, 90.9, 91.1, 91.4, 91.4, 91.5, 91.5, 91.6, 91.7, 91.7, 91.7, 91.8, 92, 92.1, 92.1, 92.1, 92.1, 92.4, 92.6, 94.4, 94.7, 94.8, 95
Johns Hopkins University	(1920)	85.6
Washington University School of Medicine	(1925)	89.7

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University School of Medicine	(1923)	Illinois
University of Illinois College of Medicine	(1923)	Nebraska
Tulane University	(1919)	Louisiana
St. Louis College of Physicians and Surgeons	(1906)	Illinois
St. Louis University School of Medicine	(1925)	Missouri
Washington University School of Medicine	(1924)	Missouri
Creighton Medical College	(1913), (1924, 5)	Nebraska
University of Nebraska	(1924)	Nebraska
University of Pennsylvania School of Medicine	(1923)	Minnesota

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Rush Medical College	(1923)	N. B. M. Ex.

* This candidate has finished his medical course and will receive his M.D. degree on completion of a year's internship in a hospital.

Minnesota June Examination

Dr. Thomas McDavitt, secretary of the Minnesota Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 16-18, 1925. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Fifty-nine candidates were examined, all of whom passed. Seven candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Georgetown University School of Medicine	(1923)	89.9
Northwestern University School of Medicine	(1925)	87.9
Rush Medical [illegible]	(1924)*	91.9
University of I[illegible]	[illegible]	89.5
State Universit[illegible]	[illegible]	86.4
University of Minnesota Medical School	(1924)†	90.9, 91, (1925) 86.9, 88.6, 88.6, 89.1 (1925)† 85.6, 86, 86.3, 86.8, 86.8, 86.9, 87, 87, 87, 87.1, 87.1, 87.2, 87.4, 87.4, 87.8, 88, 88.2, 88.3, 88.4, 88.4, 88.6, 88.7, 88.7, 88.8, 88.9, 88.9, 89, 89, 89.1, 89.2, 89.3, 89.4, 89.4, 89.8, 90, 90.2, 90.2, 90.3, 90.5, 90.6, 90.9, 91.3, 93.1
University of Pennsylvania School [illegible]	[illegible]	88.2
University of Manitoba Faculty of [illegible]	[illegible]	92.1, 92.4
University of Toronto Faculty of [illegible]	[illegible]	85.9

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1915)	Illinois
University of Michigan Medical School	(1902)	N. Dakota
Hahnemann Medical College of Philadelphia	(1923)	Penna.
University of Pennsylvania	(1923)	N. Carolina
Marquette University School of Medicine	(1925)	Wisconsin
Wisconsin College of Physicians and Surgeons	(1911)	Wisconsin
University of Toronto Faculty of Medicine	(1922)	N. Dakota

* This candidate has finished his medical course and will receive his degree on completion of a year's internship in a hospital.

† These candidates haves finished their medical course and received an M.B. degree and will receive the M.D. degree on completion of a year's internship in a hospital.

Book Notices

The Medical Aspects of Chemical Warfare. By Edward B. Vedder, Lieut. Colonel, M. C., U. S. Army. With a Chapter on the Naval Medical Aspects of Chemical Warfare. By Duncan C. Walton, Lieut. Commander, M. C., U. S. Navy. Cloth. Price, $6.50. Pp. 327, with illustrations. Baltimore: Williams & Wilkins Company, 1925.

The purpose of this treatise is to bring before the medical officers of the United States Army, both regulars and reserve, information which they should possess on the medical aspects of chemical warfare. The introduction presents an excellent brief for this much maligned military weapon. It explains how gas warfare has suffered from Teutonic odium because it was first used by the Germans against defenseless troops. It explains how gas warfare has suffered also from the fact that gaseous weapons are new weapons and because the lay mind is especially sensitive to the somewhat mystic character of all things chemical. This introduction also brings out clearly that the public mind has been confused to a serious degree on this subject. This is in part a reflection of the early propaganda when the weapon was new and distinctly Teutonic, and partly the result of mere exaggeration by unscientific lecturers and writers. It is hard now for the public mind to accept that American made war gases are any more humane than German made gases. The subject has been further aggravated because organized pacifists who are unqualifiedly opposed to all militarism have chosen gas warfare as the most vulnerable point of attack against the military system. This is good generalship from the standpoint of the antimilitaristic movement, but it is poor science. The question of the humanity, effectiveness or economy of gaseous weapons cannot be judged from impressionistic premises. The only way to arrive at a true appraisal of this weapon is through a careful study of the records of the World War. Fortunately, these records are available in a high degree of accuracy, thanks to the excellent reports of the Surgeon General's Office. The authors present a careful analysis of these records and show conclusively that while gas proved to be a high casualty producer in the war, the fatalities were only about one twelfth of those resulting from other wound producing agencies. The text then proceeds to a technical classification of gaseous weapons into pulmonary irritants, vesicants, lacrimators and irritant smokes. Each gaseous weapon used in the World War is placed in its proper category and thoroughly discussed as to preparation, properties and treatment. The authors then take up the subject of protection against gas weapons, discussing successively the gas mask, protective clothing and collective protection. The rather perfunctory chapter on elementary physics and a second one on elementary chemistry scarcely comport with the vivid interest the rest of the subject matter carries. The final chapter discusses the somewhat mooted question of the treatment of certain respiratory diseases by chlorin.

The book measures up to the best expectations and is markedly free from irritating typographic errors. Its appearance at this time, when the Geneva protocol, seeking to ban gas warfare, is to come before our government for confirmation, is peculiarly timely. There are many thinking persons who have given careful study to this problem who believe that the banning of gas warfare will not advance the cause of universal peace. If universal peace is ever to be realized, it will come about, as Haldane has said, "By a careful scientific study of the causes of war." It is only in this manner that any advance has been made by science against disease, and war is a disease of society. It is not scientific, therefore, to seek to outlaw war by attempting to limit its methods. It is a grave question whether it is wise for any nation to forswear the use of such an effective weapon as military gas. The potentialities of such agencies become terrific against an unprotected country. Even the most sanguine exponents of the control of methods of warfare cannot maintain that agreements not to use this or that weapon can be made universal.

Chemical preparedness rests especially in a nation's industrial development. This comes about from the close resemblance, even identity, between industrial and military chemicals. The subject cannot be effectively controlled except by attempting to allocate the production of chemicals among the agreeing nations, so as to maintain a balance of chemical power. Such a program is fraught with immeasurable difficulties.

Any student with a sincere desire to learn the correct history of gas warfare will find a splendid opportunity in Vedder's book. To the reserve medical officer, it carries an especial appeal, because it assembles material on the action and treatment of war gases not available in any other collected source.

An Introduction to the Mind in Health and Disease. For Students and General Practitioners Interested in Mental Work. By T. Waddelow Smith, F.R.C.S., Deputy Medical Superintendent of the City Mental Hospital. Cloth. Price, $4. Pp. 235, with 6 illustrations. New York: William Wood & Company, 1925.

The author offers this book "in the hope that it may stimulate students in studying the many excellent textbooks now written on the subject and give a prop or two to the general practitioner in forming an opinion on the many cases of psychic origin, especially vagotonia, which come under his observation in his daily round." The introductory chapters contain several excellent colored diagrams; in addition, there is a fairly good outline of the vegetative nervous system. For the rest this book seems to be a collection of Freudian definitions—everything, from a corn to the gravest form of insanity is given a Freudian interpretation. The short paragraphs descriptive of the classic types of insanity are well done, but etiologic guesses are made at random. For instance, he says, "The origin of a large number of mental disorders is found in the disturbed equilibrium of the hormones of the organism as a whole." Again, in describing the mechanism of epilepsy, he says: "In studying the epileptic constitution one sees constantly a mixture of egotistic narcism and the drive of the paranoia dominating the conduct, until the epileptic dementia sets in, also an emotional tone circulating round the home and parents, which would strongly suggest that the infantile fixature was round the parent stage, and this is strengthened if we study the four classic cases of epilepsy in great men." This high-sounding explanation, which does not explain anything, is followed by instances in the lives of Napoleon, Dostoiefsky, Mahomet, Julius Caesar, who are considered by the author as proved epileptics. Napoleon's mother was a strong, arrogant, dominating personality, to whom he was devoted. Dostoiefsky idolized his mother and had an epileptic episode after her death when he heard her voice. Mahomet married a woman old enough to be his mother, to whom he remained true as against all the customs of the state in which he was living. And Julius Caesar is reported to have had constant incest dreams of his mother. Speaking of epilepsy, the author says: "The regression is interesting, for it seems to go back very far in the life of the individual to the stage of Magic 'Hallucinatory Omnipotence; of the race to probably our fish state, as the sense of smell is intensely repressed in these cases." These citations are self-condemnatory, and further comment seems unnecessary. Contrary to the author's expectation that his book may stimulate the further pursuit of similar studies, the tendency will be to confuse the reader with much unintelligible verbiage.

Forensic Medicine. A Text-Book for Students and Practitioners. by Sydney Smith, M.D., D.P.H , Principal Medico-Legal Expert, Egyptian Government Service. With an Introduction by Prof. Harvey Littlejohn, F R C.S., F R.S.E., Professor of Forensic Medicine, University of Edinburgh. Cloth. Price, $6. Pp. 498, with 117 illustrations. Philadelphia: P. Blakiston's Son & Co., 1925.

Human anatomy, physiology and pathology are the same the world over. So far as this book discusses matters determinable by those sciences, the fact that the discussion is based on the author's observation in Scotland, New Zealand and Egypt does not militate against its value in the United States. On the other hand, the very fact that the book is based largely on what the author has learned by experience gives to it, and especially to the illustrations, an unusual value. But there is no international uniformity of law or of legal principles, and this book as published in the United States seems to be merely a reprint of what was written for British dominions, based on British law. The American reader, therefore, must study with caution the chapters discussing points of law, or he may be badly misled. The book's chief value is in its discussion of identity, bodily injuries of all kinds, asphyxiation in its various forms, and the medicolegal relations of sex. These, however, are all discussed only from the standpoint of the criminal law. The discussion of mental disorders from a medical standpoint hardly gives a fair idea of prevailing concepts concerning them. Freud and psychanalysis are not mentioned, either to approve or to condemn. The discussion of poisons is brief and to the point, but it may be quesioned whether the analytic portions might not as well have been omitted. The chemist who must rely for his knowledge of analytic toxicology on so brief an account of it had better not assume the responsibility incident to such work.

An Introduction to Sexual Physiology. For Biological, Medical, and Agricultural Students By F. H A. Marshall, F.R.S. Cloth. Price, $2.75 net. Pp. 167, with 72 illustrations. New York: Longmans, Green & Co., 1925.

From such subjects as zoology, botany, anatomy, histology, embryology, physiology, obstetrics and sociology Dr. Marshall has constructed a compact volume. His treatment of the mechanism of reproduction begins with the ameba and ends with man. In discussing internal secretions of the reproductive organs, he touches on the rejuvenation operation of Steinach. The rôle of chromosomes leads him to the subject of inherited characteristics. In the last chapter, entitled "Fertility," he takes up vitamins, artificial insemination, the birth rate and the vexed question of birth control—his nearest approach to argumentation. The book is written in direct, finished, judicial style. It is crammed with information and excellently illustrated, partly in color. Too technical for the reader without a background in biology, it is not technical enough for the student of medicine. It would be interesting and fairly profitable reading for the summer before entering medical school.

Le bactériophage de d'Hérelle. Par Dr. Paul Hauduroy. Préface du Professeur Fernand Bezançon. Paper. Price, 10 francs. Pp. 212. Paris: E. Le François, 1925.

This little book gives a summary of the present knowledge of bacteriophages as viewed by the French followers of d'Hérelle. Consequently, bacteriophage is presented as a living agent or principle, a "virus of microbes," the discovery of which has opened the doors to new fields in science and new methods of treatment, the latter certainly being still in the earliest part of the experimental stage. The book is interesting as an introduction to the work on bacteriophage, but it cannot be accepted as containing any final solutions of the fundamental questions of the nature and significance of the bacteriophagic phenomenon.

Miscellany

REPORT OF MALARIA RESEARCH UNIT

In cooperation with the government of Palestine, the American Joint Distribution Committee maintains a malaria research unit at Haifa, which in 1923 conducted malaria control demonstrations to establish the possibility of malaria control at a low cost. The demonstrations provided information on the prevalence of malaria in Palestine and the types of mosquitoes and were an excellent means of educating the public in the value of malaria control. The engineering division of the research unit made detailed surveys of swamps and devised methods to eradicate them, demonstrating that many of the large swamps could be eliminated at no great expense. The Malaria Research Unit offered to contribute part of the cost of the work on condition that the inhabitants of the communities affected contributed the remainder, either in labor or in funds. The unit's laboratory examined thousands of blood films to determine the malaria index of communities and to establish diagnoses.

The topography and climate of Palestine make its malaria problem. There is a coastal plain from 4 to 20 miles wide from Acre to Gaza, which at Haifa turns east, cutting the hills transversely and joining the valley of the Jordan on the east with the coastal plain on the west. The hills between are chiefly limestone, in which winter rains erode deep holes and give rise to pools which retain water the year around As 'the rain waters approach the sea, they are blocked by sand dunes and spread out along the coastal plain into a series of great swamps known as coastal marshes. Rain seeps into the hills and crops out in the foothills as springs which flow on into neglected wadis. The inhabitants in the hills build cisterns to store up the rain. Thus the sources of mosquitoes are obvious. There are leaky irrigation ditches also, too shallow to hold all of the water and too pervious to prevent seepage. The irrigation ditch has become a serious problem. Stagnant water exists everywhere, but especially in the highlands and near the coast. These mosquito breeding places will be eradicated when the natives learn sanitation and when the country is developed, the cisterns fitted with pumps and the springs properly exploited. Coastal swamps can be controlled only by radical measures.

The research unit organized nine malaria control demonstrations, each with a trained antimalaria inspector, who lived in the district, supervised the breeding places and had assistants who visited the districts to instruct local inspectors. They reported weekly to the central office, which controlled all of the demonstrations. The total area under control was about 600 square kilometers with a population of 13,580 Jews and 7,650 Arabs, and all other classes of the population represented. There was (*a*) a house-to-house search for hibernating mosquitoes; (*b*) a survey of the parasite and spleen rates followed by treatment; (*c*) a complete survey of breeding places in a certain radius of settlements, and (*d*) control of breeding places. Quinin was used only when mosquito control had broken down and then only as a temporary measure. The larvicides that proved most useful were (1) a paraffin-crude oil mixture containing 0.1 per cent. castor oil; (2) Paris green, and (3) a water solution of cresol. The addition of castor oil to the kerosene mixture greatly increased its spreading and penetrating power and was more economical, as 10 c.c. is plenty for 1 square meter, whereas 25 c.c. of paraffin alone or paraffin and crude oil is required for the same area. Paris green was useful in overgrown pools where kerosene mixtures were almost useless. It was diluted with fine sand or road dust in the proportion of 1 part to 100; 10 gm. of this mixture was sufficient for 100 square meters of swamps; this did not kill the anopheles' eggs and pupae; consequently, the powder had to be applied every seven instead of ten days, as in the case of oil. For open reservoirs and irrigation wells in the orange groves, copper sulphate in a dilution of 1:1,000,000 was found sufficient to destroy the algae and keep the tank free from vegetation from three to four weeks.

The Bedouin and the shepherd come with their flocks from the East in the spring in search of pasture, move across the plains, settle along creeks, and change their camps frequently. They are usually heavily infected with malaria; the research unit found among them a parasite index as high as 25 per cent. and a spleen index of 80 per cent. or more. Thus, as they move from place to place they leave a trail of malaria behind them.

Prior to control work (in 1922), the minimum annual incidence of malaria in these areas was 50 per cent., and in at least three of the districts it was 100 per cent. The report shows the result of this control work graphically by tables prepared for the years just previous to the work and for the year 1923. There was a decided decrease in the incidence of malaria everywhere. In the Judea areas in 1923 there were practically no primary infections and relapses became fewer; extremely low rainfall in the winter of 1922-1923 facilitated the work. Progress was made in the Hedera district in 1923 until an explosive epidemic caused by an uncontrolled coastal marsh, 2.5 kilometers from the settlement, occurred in Hedera itself. The marsh was considered beyond the normal range of flight of mosquitoes, but the epidemic showed that plans for its control at a moderate cost had to be made. The Zichron Jacob area is skirted by the largest of the coastal marshes, and the control of mosquito breeding here was out of the question. Even in this area, there was a marked reduction in the incidence of malaria, achieved by (1) reduction of the number of carriers by intensive treatment; (2) eliminating breeding places in the immediate vicinity of settlements, and (3) systematic destruction of adult mosquitoes in houses. These "half measures" will not eliminate malaria in this area and eventually the Cabara swamps must be drained.

Taken as a whole, these demonstrations caused a notable reduction in malaria in seven of the nine demonstration areas, and while the amount varied in different areas, it was sufficient in all of them to indicate the possibility of malaria control. The average decrease for all the nine areas as compared with the incidence of malaria in 1922 was almost 50 per cent. The total cost of the work per control unit was about the same for all the districts since the salary of the malaria inspector was the principal item. The cost per capita varied, as a result of the varying density of population, and ranged from a minimum of 23 cents in Ekron to a maximum of $1.55 in Kinereth. These rates compare favorably with the cost of antimalaria demonstrations in the United States. The malaria research unit completed drainage operations in 1923 in the Ein Koreh seepage area, the Birket Atta Basin, at the spring east of the village of Yajur at Solim, the Wadi Little Zarain, the Jalud Swamp in the valley of Esdraelon, and the Wadi Wakkas in upper Galilee.

ANTIVACCINATIONIST DIES OF SMALLPOX

THE JOURNAL, September 26, contained a comment on smallpox statistics, pointing out that antivaccinationists were largely responsible for the increasing number of cases of this disease in the United States. *Health News* of the New York State Department of Health makes public the following instance:

> *Health News* of February 2 carried an item mentioning a fatal case of smallpox in a schoolteacher. An interesting feature of this case has just been brought to our attention by the health officer of the municipality in which the teacher lived.
>
> Following the teacher's death, mothers of two pupils in her class independently reported to the health officer that just before Christmas they had told the teacher that their children were to be vaccinated during the holidays. The teacher strongly advised against it on the ground that it "was a medieval custom, was harmful to the welfare of the child, and that deaths were occasionally caused by such vaccinations"
>
> On January 12 this teacher died of smallpox
>
> Although she took her own advice, fortunately the mothers of her pupils did not do so.

Medicolegal

Revocation of Registration for Assisting Unregistered Person in Practicing Medicine—Valid Law

(Davis v. Calderwood et al. (Mass.), 146 N. E. R. 708)

The Supreme Judicial Court of Massachusetts in deciding that a final decree should be entered dismissing the plaintiff's bill says that he sought by this suit in equity to enjoin the defendants, who constituted the board of registration in medicine, from proceeding with a hearing against him pursuant to a notice issued for him to show cause why his registration as a practitioner of medicine in that commonwealth should not be revoked. It is assumed that he would suffer irreparable injury in his property and personal rights if the defendants should proceed to revoke his registration, and that therefore in this suit he might question the constitutionality of the statute under which they were proceeding.

The statute regulating the practice of medicine and conferring powers of registration of physicians and of revocation of such registration for cause, has been before the court in numerous cases. Its constitutionality, although decided or assumed in all those decisions, was examined at large in *Lawrence* v. *Board of Registration in Medicine*, 239 Mass. 424, 132 N. E. 174. After a detailed analysis of the statute and a review of many authorities, its constitutionality was upheld. Further reflection affords no ground to doubt the soundness of that adjudication. It is affirmed.

The statute requires a hearing before a public board, at which this plaintiff may be represented by council and call witnesses, with provision for further hearing in court and for revision and reversal of the finding of the board if justice demands such action. Every constitutional right is protected. It was stated in the notice of hearing to be given this plaintiff that the specific charge against him was "alleged association with an unregistered person, to wit, James P. Coll, of 124 State Street, Springfield, Mass." Apparently this charge was framed under Section 2 of Chapter 112 of the General Laws of Massachusetts, whereby the board is empowered after hearing to "revoke any certificate issued by it and cancel for a period not exceeding one year the registration of any physician who has been shown at such hearing to have been guilty . . . of acting as principal or assistant in the carrying on of the practice of medicine by an unregistered person." The notice to be issued to a registered physician of such a hearing is not to be construed with technical strictness. It is to be assumed also that further specifications would be given on proper request in any instance when the subject-matter was not fairly set out in the initial notice. No such request appeared to have been made in the case at bar. Every presumption is to be made in favor of the regularity and fairness of the methods of procedure and of the proposed action of such a board.

The contention cannot be supported that assisting an unregistered person in practicing medicine is not a sufficient ground for the revocation or cancellation of a registration. Incidental means for enforcing and giving effect to a valid statute violate no constitutional rights. This provision stands on this point with the main provisions of the act.

Indictments and the Harrison Act—Tennessee Law

(Mitchell v. United States (U. S.), 3 Fed. R. (2d Series), 514)

The United States Circuit Court of Oppeals, Sixth Circuit, in affirming a judgment of conviction of defendant Mitchell for selling narcotics in violation of the Harrison Act, says that two counts of the indictment expressly alleged that the defendant was a physician and was duly registered as such under the Harrison act, and did not allege that his disposition of the narcotic stated was not made to a patient and in the course of the physician's professional practice. While it would not be necessary to negative this matter of lawfully dispensing in the course of professional practice if the counts had not already carefully shown that the defendant was a registered physician, yet, when this was made to appear, it then became necessary to negative, not an exception to something already stated, or an exception found in the act, but an inference naturally to be drawn from the acts which had been stated; and, as it has been decided that the giving of a prescription is participating in the sale made by the filler, the court cannot draw the necessary inference of nonprescription from the mere fact that the counts alleged selling. Therefore the court holds that these counts were insufficient.

Three other counts were not open to this objection; nor were they defective because they did not allege that the prescriptions were filled. They stated that the defendant, being a physician, sold, dispensed and distributed morphin in the following manner: That he issued a prescription therefor, not in the course of his professional practice. A physician who issues a prescription, which is filled, thereby participates in or aids and abets a sale. The allegation of sale or delivery implies a completed act, and when it is said that there was a sale through a prescription, it is, in effect, said that the prescription was filled.

At the time of the passage of the Harrison act it was believed by at least some reputable physicians that morphin addiction was a disease; that it was proper, in the treatment of this disease and to relieve pain and suffering, to prescribe morphin in limited quantities for these addicts; that to furnish the addict with a limited quantity of morphin for recurrent self-administration, even when the patient was not confined, was within the discretion of the physician; and that for a physician to furnish morphin in this way to an addict, when the physician in good faith believed it was necessary thus to treat the disease and relieve suffering, was a practice which was intended to be permitted by the express exemption found in the Harrison Act. In accordance with this idea, the Tennessee legislature passed a law intended to provide a system by which physicians who desired to do this kind of professional business would be measurably protected by what was, in effect, an official certificate that the morphin was necessary. As the construction of the Harrison act was developed by successive decisions of the Supreme Court of the United States it became apparent that this method was not within the stated exception, and that the practices approved of by some reputable physicians and expressly contemplated by the Tennessee statute were ipso facto (by the fact itself) violations of the Harrison act.

No Order for Excision of Cells or for Roentgenograms

(Andrus v. Fomfara (N. J.), 127 Atl. R. 788)

The Supreme Court of New Jersey says that in this action for damages the plaintiff contended that by reason of the defendant's negligence he was injured, and that a growth on the outside of his body, near the hip, was a result of such injury, and was a malignant and cancerous growth. The defendant desired not only to have the plaintiff examined by surgeons, but to have the order of examination provide that the surgeons might make an excision of some of the cells of the alleged cancerous growth sufficient in number to examine them under a microscope, contending that this was the best test to determine whether the growth was of a cancerous nature or not. If the court was not willing to direct that the plaintiff submit himself to an excision of a portion of the growth, then it was requested that the court direct that roentgenograms of the growth might be taken. If the court was unwilling to grant either of these requests, then the court was asked to make an order for an examination by surgeons without excision and without the making of roentgenograms. This application was made under Section 19 of the evidence act of New Jersey, which provides that on or before the trial of any action to recover damages for injury to the person the court may from time to time on the application of any party therein order an examination of the person injured as to the injury complained of, by a competent physician or physicians, surgeon or surgeons, in order to qualify the person or persons making the examination to testify in the case as to the nature, extent and probable duration of the injury complained of.

It will be observed that the statute gives to the court only the power to direct and order an examination of the person injured. The request of the defendant was for more than an examination. It amounted to a request for an operation. In this court's opinion the statute is not broad enough to give the court power to oblige a plaintiff to submit to an excision of cells from a growth in order to furnish testimony for the defendant, as to the nature of the plaintiff's ailment. No case was cited on the brief for the defendant which goes to this length. It has been held in compensation cases in New Jersey that an employee is not obliged to submit to an operation, even though physicians entertain the opinion that the operation would lessen the effect of the injury of the employee.

This court is also of the opinion that it should not direct that roentgenograms of the plaintiff be taken for the defendant. Roentgenograms sometimes result in the subject being seriously burned. In the case of *Boelter* v. *Ross Lumber Co.*, 103 Wis. 324, 79 N. W. 243, the plaintiff had submitted to an examination by the roentgen-ray process, and had been burned. The court refused to compel a second examination by such a process, and this was held not to be an abuse of the discretion of the court. In this court's opinion, the only examination which this court should permit and order was an examination without excision or the right to take roentgenograms.

Musculospiroparalysis Not an Accidental Injury

(Chop v. Swift & Co. (Kan.), 233 Pac. R. 800)

The Supreme Court of Kansas, in affirming a judgment for the defendant, says that the plaintiff was employed in a packing plant, carrying links of cold sausage from one part of the plant to another. She picked up the links with her right hand and draped them on her left arm, taking them to a carrier. The links of sausage were quite cold and the temperature of the room was low. Her arm became so cold that she said there was a numbness, and buckets of warm water had been provided into which she would thrust her left arm after the removal of the sausage, and then would return for another load. After she had been there for thirty days she had pains in her arm which she testified she first called rheumatism. She went to a physician who treated her and afterward noticed wrist drop. He diagnosed the affliction as one of musculospiroparalysis, and for musculospiroparalysis, or wrist drop, the plaintiff asked an award of compensation under the workmen's compensation law, but the court holds that the injury could not be regarded as an accidental one within the meaning of the law.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 20-24. Dr. Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 21-23. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Radiology and Physiotherapy, Chicago, Oct. 19-22. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Neb., Secretary.

American College of Surgeons, Philadelphia, Oct. 26-30. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Public Health Association, St. Louis, Oct. 19-22. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Association of Military Surgeons of the United States, New York, Oct. 8-10. Col. J. R. Kean, U. S. A. Ret., Army Medical Museum, Washington, D. C., Secretary.

Central Neuropsychiatric Association, Ann Arbor, Oct. 23-24. Dr. Karl A. Menninger, Neuropsychiatric Clinic, Topeka, Kan., Secretary.

Central States Pediatric Society, Chicago, November 6-7. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Delaware State Medical Society, Wilmington, Oct. 13-14. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Interstate Postgraduate Assembly of America, St. Paul, Minn., Oct. 12-16. Dr. W. B. Peck, 82 Stephenson St., Freeport, Ill., Managing Director.

Kansas City Clinical Society, Kansas City, Mo., Oct. 5-9. Dr. James R. McVay, Rialto Building, Kansas City, Mo., Secretary.

Kentucky State Medical Association, Owensboro, Oct. 5-9. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Pennsylvania, Medical Society of the State of, Harrisburg, Oct. 5-8. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Southern Medical Association, Dallas, Texas, November 9-12. Mr. C. P. Loranz, Empire Bldg., Birmingham, Ala., Secretary.

Vermont State Medical Society, St. Johnsbury, Oct. 15-16. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Richmond, Oct. 13-16. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Electrotherapeutics and Radiology, New York

43: 301-326 (Aug.) 1925

Electrotherapeutics in Urology. V. C. Pedersen, New York.—p. 301.
History of American Electrotherapeutic Association. III. W. B. Snow, New York., and G. B. Massey, Philadelphia.—p. 307.

American Journal of Obstetrics and Gynecology, St. Louis

10: 153-312 (Aug.) 1925

*Cesarean Scar. O. H. Schwarz and R. Paddock, St. Louis.—p. 153.
*Weight and Dimensions of Human Placenta in Its Relation to Weight of New-Born Infant. F. L. Adair and H. Thelander, Minneapolis.—p. 172.
Preliminary Carcinoma of Cervix Uteri Treated with Radium in Woman's Hospital in State of New York. L. K. P. Farrar, New York.—p. 205.
*Gyneplastic Repairs Following Childbirth. J. L. Bubis, Cleveland.—p. 213.
Treatment of Secondary Anemia by Blood Transfusion Preceding Operation for Myoma Uteri and Pelvic Inflammatory Disease. B. M. Anspach and H. W. Jones, Philadelphia.—p. 222.
*Influencing Fertility of Female White Rat by Treatments with Placental Tissue. F. Kovacs, Baltimore.—p. 232.
Version; Indications and Contraindications. H. E. Miller, New Orleans.—p. 241.
*Symptoms Associated with Menstrual Cycle and Effects Thereon of Ovarian Therapy. H. Sharlit, J. A. Corscaden and W. G. Lyle, New York.—p. 246.
Rôle of Cervix in Sterility. I. W. Kahn, New York.—p. 254.
Limitations of Cesarean Section. C. J. Miller, New Orleans.—p. 260.
Brow Presentation an Attitude of Deflection; Case of Spontaneous Brow Transverse. D. A. Calhoun, Troy, N. Y.—p. 266.
Case of Uterus Duplex Bicornis with Double Vagina. J. W. Price, Louisville.—p. 269.

Cesarean Scar.—The healing of the incision in the wall of the guinea-pig uterus after abdominal hysterotomy is described by Schwarz and Paddock. It is concluded that the most important thing in the technic of elective cesarean section is to obtain good wound approximation with a minimum amount of suturing, with as little tension on the sutures as possible. A single row of buried interrupted sutures and an outer running suture after the method used by Williams should give the best results.

Relation of Size of Placenta to Baby.—Adair and Thelander report the results of a detailed study of 392 placentas. The main points bearing on the infant are: A positive correlation exists between the weight of the new-born and (*a*) the weight of the placenta; (*b*) the volume of the placenta, and (*c*) the surface area of the placenta. A low ratio of the weight of the baby to the weight of the placenta is found in prematures, very small babies which are really on the borderline of prematurity, and in pathologic cases, especially those where toxemia of pregnancy is present. A high ratio is found chiefly in postmature or large infants. A marginal insertion of the cord indicates a pathologic placenta and almost always means a small baby.

Gyneplastic Repairs After Childbirth.—Bubis urges to repair old lacerations of the genitalia shortly after childbirth. From an economic standpoint, it saves the patients, hospitals, and community many dollars and hospital days. Operative deliveries or the presence of lochia do not seem to interfere with the healing of the tissues. Subsequent deliveries are not complicated by the previous repairs. If a new laceration occurs, either spontaneously or by episiotomy, it is repaired *immediately after the delivery.*

Effect of Placental Tissue on Fertility.—Kovacs believes that he has established the fact that some important biologic change follows the parenteral introduction of fresh placental tissue into the female which results in a temporary checking of fertility.

Effect of Ovarian Therapy on Menstrual Cycle.—The clinical features and course in a group of 132 women who complained among other symptoms of hot and cold "flashes" and who received as therapy desiccated whole ovary are reported by Sharlit, Corscaden and Lyle. They have been most favorably impressed with the value of this therapy.

American Journal of Physiology, Baltimore

73: 505-683 (Aug.) 1925

So-Called "Reversed" Hemolysis; Mechanism of Hemolysis. M. L. Schroeder and G. N. Stewart, Cleveland.—p. 505.
Changes in Physiologic Action of Insulin Induced by Exposures to Ultraviolet Light. M. M. Ellis and E. B. Newton, Columbia, Mo.—p. 530.
*Absorption of Undigested Protein from Alimentary Tract as Determined by Direct Anaphylaxis Test. J. P. Hettwer and R. A. Kirz, Milwaukee.—p. 539.
Endurance of Pressure by Nerve Cells and by Interstitial Cells. E. C. Cole, Cambridge, Mass.—p. 547.
*Changes in Blood Pressure During Sleep. C. Landis, Minneapolis.—p. 551.
Thermomyograms in Response to Nerve Stimulation. I. Initial Rise, as Registered by Einthoven's Galvanometer. C. D. Snyder and C. L. Gemmill, Baltimore.—p. 556.
Pseudocryptorchidism in Albino Rat. C. P. Stone and W. R. Miles, Stanford University, Calif.—p. 571.
Activity Studies on Male Castrated Rats with Ovarian Transplants; Correlation of Activity with Histology of Grafts. G. H. Wang, C. P. Richter and A. F. Guttmacher, Baltimore.—p. 581.
Electrical Response to Illumination of Eye in Intact Animals, Including Human Subject, and in Decerebrate Preparations. H. K. Hartline, Baltimore.—p. 600.
Nature of Conduction of Impulse in Relatively Refractory Period. H. S. Gasser and J. Erlanger, St. Louis.—p. 613.
Circulatory Responses to Static and Dynamic Exercise. H. L. White and R. M. Moore, St. Louis.—p. 636.
Studies on Radiated Proteins. I. Coagulation of Egg Albumin by Ultraviolet Light and Heat. J. H. Clark, Baltimore.—p. 649.
*Action of Epinephrin on Respiration. L. B. Nice and A. J. Neill, Norman, Okla.—p. 661.
Heat Regulation and Water Exchange. IX. Mechanism of Cold Anhydremia and Edema. H. G. Barbour and W. F. Hamilton, Louisville.—p. 665.
Beginning of Suprarenal Function in Embryo Chick. B. R. Lutz and M. A. Case, Boston.—p. 670.

Absorption of Undigested Protein from Alimentary Tract.—The experimental evidence obtained by Hettwer and Kirz support the assumption that an unusual increase of intra-intestinal pressure (as a result of stasis) is the essential factor in the absorption, and sufficiently rapid absorption, of an amount of undigested horse serum adequate to cause symptoms of anaphylactic shock in previously sensitized guinea-pigs, or to sensitize normal guinea-pigs, provided the dose is suitably adjusted.

Changes in Blood Pressure During Sleep.—Tracings of blood pressure were taken by Landis by the Erlanger method, together with auscultatory readings of systolic and diastolic pressure, while the subject went to sleep, during a short nap and during the period of awakening. As the subject went to sleep, the pressure gradually dropped from approximately 110 mm./74 mm. to 94 mm./68 mm. Certain of the curves assumed a definite pressure rhythm during this period. During sleep there appeared a more pronounced and more uniform pressure rhythm than when the subject was awake. Awakening as the result of sudden stimuli gave curves where the pressure rose very rapidly from a sleep level of 94 mm./68 mm. to 110 mm./74 mm. or higher. Natural awakening, other than that caused by sudden stimuli, was marked by a more gradual return to the normal waking pressure. Bodily position, whether reclining or semierect, had little or no effect on the blood pressure during sleep. This together with other considerations seem to indicate that the change in circulation is resultant from, rather than causative of sleep.

Action of Epinephrin on Respiration.—Nice and Neill state that within limits small doses of epinephrin injected into the blood stream of anesthetized cats, dogs and rabbits may cause an increase in the depth of respiration, while large doses produce a reversal effect or shallowness. There is a range in which the effects of epinephrin on respiration are independent of its influence on blood pressure. Large doses, however, invariably produce apnea and a rise in blood pressure. These results do not support the anemic theory.

American Journal of Roentgenology and Radium Therapy, New York

14: 105-206 (Aug.) 1925

Cholescystography by Oral Administration of Soluble Radiopaque Salts. C. S. Oakman, Ann Arbor, Mich.—p. 105.
Diverticulum of Stomach. I. Gray, Brooklyn.—p. 110.
Roentgenographic Demonstration of Adenoids. C. C. Grandy, Fort Wayne, Ind.—p. 114.
Use of Absorbable Filter with Bare Tubes of Radium Emanation. A. C. Heublein, Hartford, Conn., and D. Quick, New York.—p. 116.
Limitations of Radium Therapy in Dermatology. L. M. Taussig, San Francisco.—p. 121.
Radium Therapy in Dermatology. G. A. Robinson, New York.—p. 130.
Van Den Bergh Reaction after Deep Roentgen-Ray Irradiation. G. Cameron and H. Flecker, Melbourne, Victoria, Australia.—p. 133.
Deep Roentgen-Ray Therapy of Mammary Carcinoma. W. A. Evans and T. Leucutia, Detroit.—p. 135.
Convenient Radium Knot. P. D. Cameron, Wellington, N. Z.—p. 161.

American Journal of Syphilis, St. Louis

9: 413-588 (July) 1925

Intravenous Use of Metallic Mercury (Mercodel) in Treatment of Syphilis. J. J. Rothwell and E. R. Maloney, New York.—p. 413.
*Sulpharsphenamin. I. Value in Acquired Syphilis. J. C. Fox, New Haven, Conn.—p. 436.
*Id. II. Value in Congenital Syphilis. E. C. Dunham, New Haven, Conn.—p. 463.
*Noninfectivity of Blood in Tertiary Syphilis. W. L. McNamara, Boston.—p. 470.
Frontal Sinusitis Complicated with Profound Syphilis. G. W. MacKenzie, Philadelphia.—p. 479.
*Neurosyphilis. V. Comparison of Arsenic in Spinal Fluid Following Direct Administration of Silver Arsphenaminized Serum. L. H. Cornwall and C. N. Myers, New York.—p. 485.
*Studies in Syphilis. XVII. Penetration of Arsenic into Spinal Fluid After Intravenous Injections of Tryparsamide. J. A. Fordyce and C. N. Myers, New York.—p. 490.
Generalized Cutaneous Syphilis: Clinical Differentiation. II. Papular Syphilide. H. Goodman, New York.—p. 502.
Atypical Bulbar Paralysis Simulating Aneurysm. H. W. Dana, Boston.—p. 526.
Clinical Study of 372 Cases of Syphilis Over Period of Six Years. H. S. Applebaum, J. Levine and J. E. Fisher, Cleveland.—p. 531.
*Wound Healing in Syphilis. W. C. Menninger, Topeka, Kan.—p. 545.
Clinic Routine for Treatment of Syphilis. A. J. Casselman, Trenton, N. J.—p. 557.
Hyposulphite of Sodium in Treatment of Old Mercury and of Recent Years Arsenic Fast Syphilis. R. Wernigk, Los Angeles.—p. 563.
*Unilateral Wrist Drop Due to Syphilis; Cases. T. P. Murdock, Meriden, Conn.—p. 566.
Improved Graphic Form for Reporting Results of Kolmer's Quantitative Complement Fixation Test in Syphilis. R. A. Kilduffe, Atlantic City, N. J.—p. 569.

Sulpharsphenamin in Acquired Syphilis.—Fox gave sulpharsphenamin intramuscularly or subcutaneously in doses as high as 0.6 gm. without causing a significant local reaction, except in an occasional case, provided a solution of 33 per cent. concentration was used. The intramuscular or subcutaneous administration of the drug in patients in the secondary stage produced a slower healing effect on cutaneous and mucous lesions than is usually obtained with the other arsphenamins given intravenously. However, the end-results, as judged by absence of clinical recurrence and effect on serology, compare favorably with those produced by the other arsenicals. No superiority was shown for the drug in the treatment of patients with neurosyphilis, either when administered in the first instance or when given to patients known to be resistant to the other forms of treatment. Evidence was not obtained that the drug possessed particular value in reversing the serology of the Wassermann fast cases or in influencing favorably the clinical course of patients with disease of the cardiovascular system. The drug was found useful in treating three patients who had previously developed "shock" or "nitritoid" reactions after intravenous injections of the other arsphenamins. The route of administration seemed to play little or no part in determining the therapeutic effect, but was found to be of considerable importance as far as systemic toxic reactions were concerned. In this connection intramuscular injection was found to be the method of choice. Dermatitis was found to have a relatively high incidence, showing a total of six cases in 678 injections. It is important that three of these occurred among the 110 injections administered intravenously as compared with only one among 302 given intramuscularly. One patient, previously known to be intolerant to the other arsenicals, developed a severe grade of anemia of an aplastic type, but without purpura, following one course of seven subcutaneous treatments of 0.4 gm. each.

Sulpharsphenamin in Congenital Syphilis.—Dunham finds that sulpharsphenamin is a drug which has a distinct place in the treatment of congenital syphilis. It seems to be as effective an agent as neo-arsphenamin. There is a great advantage to the pediatrician in having at hand a form of arsenic which can be prepared easily and injected subcutaneously. It can be used in high concentration and local and general reactions need not be dreaded.

Noninfectivity of Blood in Syphilis.—Ten nonsyphilitic cases were transfused by McNamara from six syphilitic donors in the late stage of the disease. Four patients received one transfusion each, three received two, and three received three transfusions. One patient received blood from three donors. There was a marked improvement over the previous anemic condition in all cases. None of the recipients developed clinical evidence of syphilis or a positive Wassermann reaction during a period of observation of from sixteen to twenty-six weeks. From observations made on these cases and several others of which no accurate clinical record could be kept, *McNamara concludes that it is ordinarily safe to* use the blood of tertiary syphilitics for transfusion.

Arsenic Content of Spinal Fluid After Administration of Arsphenaminized Serum.—Six determinations of the arsenic content of the spinal fluid were made by Cornwall and Myers in a case of general paresis. On four occasions these determinations followed, at intervals of from six to thirteen days, the direct administration of arsphenamin to the spinal fluid. The arsenic averaged 16.77 mg. per hundred grams. On two occasions the administrations followed, at intervals of from four to eight days, the administration of arsphenamin in auto-arsphenaminized serum. No arsenic was present in one of these examinations and in the other the quantity was too small to be quantitatively determined but was detected qualitatively and, therefore, recorded as a trace.

Penetration of Arsenic into Spinal Fluid After Administration of Tryparsamide Intravenously.—Examination made by Fordyce and Myers of the spinal fluids from patients receiving the routine type of treatment with intravenous injections of tryparsamide showed that in this group 14 per cent. showed the absence of arsenic. The amounts of arsenic found do not exceed those found by other methods of administration. In order to obtain these results, it is necessary to introduce seven and one-half times as much drug as in other cases. In other words, the dosage is extremely large as compared with other drugs. Due to the rapid excretion of tryparsamide, the amount of arsenic available for penetration is extremely small after the twenty-four hour period. Experimentally, examination of the brain shows that nine times the arsenic concentration is maintained in the brain after silver arsphenamin with the use of one-fifteenth the amount of arsenic injected. It is shown that tryparsamide does not possess an unusual power of arsenic penetration into the central nervous system. Therapeutic penetration is hypothetical in that other factors which may enter into this condition are not available either experimentally or clinically.

Wound Healing in Syphilis.—Twenty-two surgical cases in which syphilis was present, as indicated by strongly positive Wassermann tests, are discussed by Menninger. Sixteen cases (72 per cent.) presented some difficulty in wound healing; the remaining six cases (28 per cent.) healed by primary union. Fourteen cases were infected in varying degrees (63.6 per cent.) five of which were potentially clean operative wounds. In four cases receiving preoperative treatment three presented some postoperative difficulty. All had positive Wassermann tests. Patients with syphilis as evidenced by a positive Wassermann test at the time of operation, despite the fact that they may have been treated, cannot be operated on with absolute impunity, although their postoperative course may be uneventful. Untreated cases of active syphilis may develop postoperative difficulty in wound healing. The rôle played by syphilis is not determined. In some cases pyogenic bacteria of low virulence grow luxuriantly; in others there is a poor tendency to union without gross infection; and in others, there is no postoperative *difficulty whatever.* Preoperative syphilitic treatment is desirable and postoperative treatment advisable, although the effectiveness of such treatment, so long as the Wassermann test remains positive, as an aid to the wound healing is undetermined.

Unilateral Wrist Drop Due to Syphilis.—Two cases of unilateral wrist drop due to syphilis are reported by Murdock. He feels that the condition is probably more common than was formerly believed.

Annals of Clinical Medicine, Baltimore

4: 89-182 (Aug.) 1925

Cardiac Neuroses. W. A. Bloedorn, Washington, D. C.—p. 89.
Neurologic Opportunities for Internist. H. C. Macatee, Washington, D. C.—p. 94.
Causes and Differential Diagnosis of Headache. W. C. Moore, Washington, D. C.—p. 98.
*Pathology of Paralysis Agitans. W. Freeman, Washington, D. C.—p. 106.
*Mental Reactions in Sequelae of Epidemic Encephalitis. S. A. Silk, Washington, D. C.—p. 117.
Traumatic Epilepsy. A. Gordon, Philadelphia.—p. 140.
*Acute Poliomyelitis; Detroit Epidemic. J. T. Watkins and E. D. McKenzie, Detroit.—p. 149.
*Etiology of Urticaria and Allied Dermatoses. F. J. Eichenlaub, Washington, D. C.—p. 170.

Pathology of Paralysis Agitans.—Two cases of paralysis agitans, one "idiopathic" and one postencephalitic, were studied in detail by Freeman. In each case there was severe degeneration of the substantia nigra without serious involvement of any other part of the brain. The findings in these two cases support Tretiakoff's contention that the substantia nigra is severely altered in paralysis agitans, and tend to show that this degeneration is the actual cause of the disease. The alterations in other parts of the brain were insignificant in comparison.

Mental Reactions as Sequelae of Epidemic Encephalitis.—In the ten cases reported by Silk there appears to be a definite relationship of influenza to the various syndromes presented. The so-called parkinsonian syndrome, which appeared following cases of typical attacks of lethargic encephalitis, did not differ clinically from cases in which no such attacks were observed. Influenza, however, was present in nearly all cases. It must, therefore, be regarded as either a very mild inflammatory process of the encephalon, which, though capable of producing such serious and lasting sequelae, passed practically unnoticed during its acute stage, or these sequelae are due to influenza and the so-called attacks of lethargic encephalitis as the more virulent forms of influenza of the cerebral type. In the cases of this series there was no tendency to improvement and in some the disease was rapidly progressive.

Epidemic Acute Poliomyelitis.—A total of 300 cases had been reported to about December 1, and a mortality of 14.67 per cent. returned in the Detroit epidemic of acute poliomyelitis which is analyzed by Watkins and McKenzie. Etiologic studies were conducted and confirmed by Rosenow's bacteriologic studies. In this group of cases those displaying spinal paralyses predominated numerically, as is true in most reported series; the bulbar group came next; those showing progressive ascending or descending involvement of the Landry type were third, as expressed by numbers, and lastly, cases with a predominance of cerebral and meningeal symptoms. The observations on the clinical pathology of the disease agree quite well with the pictures previously described. As to the end-results, there were thirty deaths. The cases presenting a predominance of cerebral symptoms with little peripheral neuron involvement contributed least to the mortality list and showed fewer residual paralyses. Of the bulbar group about 20 per cent. recovered. In these, disturbance of deglutition was the most outstanding feature when they left the hospital. Among the progressive group there were more deaths proportionately than in all other types. Aside from general measures immune homologous serum and Rosenow's immune horse serum were tried in about forty cases. Convalescent serum was collected on the twentieth day of the disease and inactivated, and nineteen cases were treated. Of this number, five, or 26.3 per cent., were apparently cured; 2, or 10.5 per cent., improved, and 12, or 63.1 per cent., showed no effect. The dosage employed was 20 c.c. repeated once, usually the following day. The intraspinal and intramuscular routes were the ones used. Intraspinally, 15 c.c. was the average dose. Rosenow's serum was employed in thirty cases and of this number, 16, or 53.33 per cent., were apparently cured; 3, or 10 per cent., were improved but would have recovered without it; 2, or 6.66 per cent., showed doubtful effects; 9, or 30 per cent., showed no change. Early the latter serum was adjudged of little value, probably because of the small doses used. The average was 20 c.c. total. Later, however, the dose was increased to five or ten times this amount and with this better results seemed to come. The intravenous and intramuscular routes of administration were the ones of choice.

Etiology of Urticaria.—Study by Eichenlaub of fifty-eight cases of chronic urticaria shows that nearly half of the cases (twenty-eight) were associated with other skin diseases. The probable etiology was determined in fifty cases. The therapeutic result in this group was directly proportionate to the ability to find and successfully treat the cause.

Annals of Surgery, Philadelphia

82: 193-320 (Aug.) 1925

*Thrombosis and Embolism. J. A. Vietor, New York.—p. 193.
*Intracranial Tumors and Abscesses Causing Communicating Hydrocephalus. W. E. Dandy, Baltimore.—p. 199.
Lengthening the Soft Palate in Cleft Palate Operations. G. M. Dorrance, Philadelphia.—p. 208.
*Epigastric Pain Symptom of Esophageal Obstruction. P. P. Vinson, Rochester, Minn.—p. 212.
Improved Goiter Technic. J. L. DeCourcy, Cincinnati.—p. 215.
Hernia of Lung. J. G. Montgomery, Kansas City, Mo., and H. Lutz, Augusta, Kan.—p. 220.
Diagnosis and Surgical Treatment of Diseases of Gallbladder. F. E. Bunts, Cleveland.—p. 232.
*Wandering Spleen with Torsion of Pedicle. J. E. Sutton, New York.—p. 239.
Spontaneous Rupture of Spleen. M. G. Wohl, Omaha.—p. 246.
Diverticula of Jejunum. N. S. Rothschild, Philadelphia.—p. 250.
Appendicitis and Transposition of Viscera. B. C. Willis, Rocky Mount, N. C.—p. 256.
*Ligation and Drop Treatment of Appendectomy Stump. J. J. Maloney, Cincinnati.—p. 260.
*Hernia of Bladder. R. E. Farr and C. W. Brunkow, Minneapolis.—p. 264.
Granuloma Inguinale. R. R. Best, Omaha.—p. 273.
*Cysts of Iliopsoas Bursa. W. D. Gatch and W. T. Green, Indianapolis.—p. 277.
Vertebral Epiphysitis; Case. P. Lewin, Chicago.—p. 286.
Closed Reduction of Acute Dislocations of Semilunar Carpal Bone. H. E. Conwell, Fairfield, Ala.—p. 289.
*Arteriovenous Fistula; Case. T. H. Thomason, Fort Worth, Texas.—p. 293.

Thrombosis and Embolism.—Vietor has studied twenty-one cases of fatal pulmonary embolism occurring in 12,615 operations. Necropsies were obtained in nine cases and showed a thrombosis of the femoral vein in four cases. In one case there was a thrombosis of the common iliac vein and the inferior vena cava. In two cases a wound inspection only was allowed so the condition of the femoral veins was undetermined. In the remaining two cases, while a complete necropsy was performed, no existing thrombosis could be demonstrated. The patients who died of a pulmonary embolus gave no clinical sign of a preexisting phlebitis or thrombosis, except in a case of carcinoma of the pancreas. In this case the patient had a hopeless condition and was gradually dying of a metastatic growth in his liver. On the thirteenth postoperative day a swelling of the left leg was first noted and on the twenty-seventh day hemiplegia developed. Death occurred on the thirty-first day after operation apparently from cachexia, but at necropsy a large pulmonary embolus with thrombosis of the common iliac and inferior vena cava was revealed. One patient with inguinal hernia complained of a pain in his right leg on his third postoperative day, but periodic examination was negative for clinical evidence of a phlebitis. He died on the eleventh day and at necropsy a thrombosis of the right femoral vein was found.

Intracranial Tumors Cause Communicating Hydrocephalus.—Pathologic evidence is offered by Dandy to show that hydrocephalus of the communicating type may be caused by tumors and abscesses when so situated that they obstruct the cisternal conduit under the brain stem. Postmortem injections of India ink proved the cisterna pontis to be completely blocked in each case. The cause of hydrocephalus in these cases is precisely the same as in the more common instances resulting from adhesions after the spontaneous cure of meningitis. All cases of hydrocephalus, whether of the communicating or noncommunicating type, have fundamentally the same underlying cause, an obstruction in the system of spaces through which cerebrospinal fluid circulates. The result of any such obstruction is reduction of the spaces in which cerebrospinal fluid is absorbed.

Epigastric Pain Symptom of Esophageal Obstruction.—Two cases are cited by Vinson which illustrate how the pain of cardiospasm may be confused with that of disease in the gallbladder.

Wandering Spleen with Torsion of Pedicle.—Sutton's patient, a boy aged 13, was awakened from a sound sleep by intense cramplike pain in the epigastrium. He vomited several times but the pain continued. During the morning a good bowel movement gave slight relief for a short time. Several hours before coming to the hospital, pain became more intense in the right lower abdominal quadrant. He was seen by his family physician, who made a diagnosis of "probable acute appendicitis." On the day prior to the onset of his abdominal pain the patient had a chill and an intensely sore throat developed. Up to the time of this illness he had attended school regularly, had done no violent exercise, and had not fallen or injured his abdomen. There was no history of previous abdominal pain, indigestion or constipation. His genito-urinary history was negative. The abdomen was flat, symmetrical and held rigidly throughout its entire extent. On palpation, there was acute tenderness in the region of the cecum and sudden release of pressure produced acute pain. Pressure over the splenic flexure of the colon did not produce pain at McBurney's point when the patient coughed. Across the entire lower abdomen the muscles were held very tensely and what appeared to be boardlike rigidity was present. No masses were recognized by abdominal palpation. A laparotomy was performed. Occupying and completely filling the pelvis was a mass which was recognized to be the spleen. It was enlarged to more than three times its normal size. The surface was smooth, glistening, free from fibrin or adhesions, and its color was bluish-black. The pedicle, on which it had rotated 360 degrees, was 10 inches long and looked like a large umbilical cord. No pulsations could be felt at the hilum of the spleen. The spleen was easily delivered from the pelvis and removed. The boy was well at the time of the last examination, four months later.

Ligation and Drop Treatment of Appendix Stump.—The ligation and drop method, leaving the stump free in the abdominal cavity, Maloney says, is the ideal procedure because it is more easily and readily performed with lessened mortality and morbidity rate. Any method of burying the stump in the cecal wall is unphysiologic and unsurgical and is followed by a greater percentage of complications and sequelae.

Hernia of Bladder.—In all inguinal and femoral hernias in people past middle life, Farr and Brunkow insist that the possibility of the involvement of the bladder should be kept in mind. In any case a positive diagnosis can be made by means of the roentgen ray.

Cysts of Iliopsoas Bursa.—Gatch and Green report one case and summarize the clinical data on affections of the iliopsoas bursa.

Femoral Arteriovenous Fistula.—A case of arteriovenous fistula of the femoral artery and vein is presented by Thomason showing Branham's sign and associated blood pressure variations, due to an increase in blood volume caused by the fistula; cardiac dilatation and hypertrophy—the result of increased volume flow-through the heart incident to the production of the fistula; slight dilatation of the proximal artery —due to the small size of the fistulous opening as compared to the cross section of the artery; marked development of the collateral circulation following formation of the fistula and unusual occurrence of auricular fibrillation three weeks after operation, ascribed to failure of the heart following damage to the myocardium at the time of repair of the fistula.

Boston Medical and Surgical Journal

193: 331-380 (Aug. 20) 1925

Care of Pregnancy. W. C. Danforth, Evanston, Ill.—p. 331.
Joint Fractures. P. D. Wilson, Boston.—p. 338.
*Clinical Spirography. II. Bronchial Asthma. S. G. Mudd, Boston. —p. 345.
*Id. III. Variety of Respiratory Abnormalities. S. G. Mudd, Boston. —p. 349.

Spirography in Bronchial Asthma.—The type of breathing in the asthmatic patients studied by Mudd showed a prolongation of the expiratory phase in most cases. The expiration-inspiration ratio in cases of marked bronchial asthma varied from 1.5 to 2.1, as compared with an expiration-inspiration ratio of 1.3 to 1.5, in normal subjects. The respiratory records indicate the manner in which the breathing in asthma is facilitated by the use of epinephrin. The volume per breath is usually considerably increased, the respiratory rate reduced, the minute volume increased, and the expiration-inspiration ratio diminished following the injection of the drug. The vital capacity was increased in all instances. In one case the volume per breath was increased, the respiration rate greatly reduced, but the total ventilation was not greatly changed, following epinephrin. In a very severe case the expiration-inspiration ratio and the respiratory rate were not materially altered by the drug. The time required for the asthmatic to complete the supplemental phase during a vital capacity tracing was considerably prolonged, before as well as after epinephrin. In severe cases of asthma, the effect of epinephrin, even in large doses, was less marked and more transient in character than in mild cases. Atropin is of some value in the treatment of asthma; however, epinephrin is much more efficacious. Oxygen therapy is said to be of questionable value in asthma.

Spirography in Respiratory Abnormalities.—Respiratory tracings are reported on by Mudd of a number of respiratory abnormalities, including fracture of the sixth cervical vertebra, psychoneurosis, effort syndrome, lobar pneumonia, cardiac dyspnea, postoperative massive collapse of the lung, diabetic acidosis and uremic poisoning.

Canadian Medical Association Journal, Montreal

15: 771-882 (Aug.) 1925

Uremia and Nephritis. J. Meakins.—p. 771.
*Determination of Kidney Function in Private Practice. G. H. Agnew. —p. 778.
*Quinidin Sulphate in Cardiac Irregularities. R. A. Jamieson.—p. 782.
*Erythema Nodosum. W. T. Connell.—p. 785.
*Test for Hexyl-Resorcinol in Body Fluids. D. C. Elliot and H. G. Barbour.—p. 787.
Abortions and Their Treatment. S. Kobrinsky.—p. 789.
Modern Advances in Diagnosis of Tuberculosis. A. H. W. Caulfeild. —p. 793.
Tuberculosis in Child. Preventive Rôle of Open Air School, Summer Camp and Preventorium. J. H. Elliot.—p. 796.
Most Important Agencies in Provincial Campaign Against Tuberculosis. R. G. Ferguson.—p. 799.
*Case of Adolescent Myxedema. J. R. Davidson.—p. 803.
*Atelectasis of Lung. H. A. Farris.—p. 808.
Tuberculosis Survey of School Children in Alberta, 1925. A. H. Baker. —p. 816.
Traveling Diagnostic Clinic for Diseases of Lungs. G. C. Brink.—p. 817.
Treating Tuberculosis in Dry Climate Belt. A. D. Lapp.—p. 819.
Evaluation of Tuberculosis. A. C. Jost.—p. 822.
*Rôle of Ultraviolet Ray in Treatment of Tuberculosis. H. P. Wright.—p. 828.
Results of Artificial Pneumothorax Treatment at Muskoka Institutions of National Sanitarium Association. W. B. Kendall.—p. 832.
Standards in Chest Radiography. P. M. Andrus.—p. 836.
Thymic Death in Child with Glandular Family History. W. A. McIntosh. —p. 839.
Case of Silicosis with Necropsy. A. R. Riddell.—p. 839.
Tuberculosis of Inguinal Glands. F. H. Pratton.—p. 841.

Determination of Kidney Function.—Agnew points out that there is such a wide margin of safety that incipient or slight changes in the kidneys are not indicated by tests. For instance, three fifths of the kidney tissue must be destroyed before the blood urea is raised. These tests are more to estimate the extent of the damage done. Also it should be remembered that focal nephritis may give albumin, pus and blood in the urine without in any way affecting the kidney function. This is due to the wide margin of safety provided by nature. It is a long way from the kidney to the eye, but an ophthalmoscopic examination is advisable in every suspected case. To study the retina is like holding a divided kidney in the hand.

Quinidin Sulphate in Heart Irregularities.—The results obtained from the use of quinidin sulphate in fifty-two cases of heart disease are presented by Jamieson. Of this number forty-nine were suffering from auricular fibrillation and three from paroxysmal tachycardia. The majority of the patients received a preliminary course of digitalis. Of the forty-nine cases of fibrillation, twenty-six reverted to normal rhythm. The permanence of normal rhythm was varied from a few days to two years. In the majority fibrillation has reappeared within several weeks; a number of this latter group have had two or more courses of treatment with varying success. Two patients have maintained a regular rhythm for a period of more than two years. Slightly better results were obtained in those patients in whom no valvular defect was demonstrated. Among this group there have been four deaths. Of the three patients who were treated for paroxysmal tachycardia, one received no benefit; a second was very markedly improved; the third, still under treatment, has had total freedom from an attack for seven weeks, which is an exceptionally long period for her. From a study of these results it would appear that in carefully selected cases the use of quinidin sulphate in the treatment of cardiac irregularities considered is justifiable. The most important contraindication would seem to be high grades of myocardial damage as demonstrated by either clinical or electrocardiographic examinations. The production of embolism following the use of quinidin is the danger which is emphasized. Judging from the fatal cases here reported, three of which came to necropsy, there must be some other factor, and probably the one suggested by Lewis, that with a changing rhythm there may be a ventricular standstill for a sufficiently long period to cause death, is the one to be feared.

Erythema Nodosum Result of Focal Infection.—Connell believes that erythema nodosum is a manifestation of focal streptococcal infection in which tonsils, teeth and nasal sinuses play the important rôle of infective foci.

Test for Hexylresorcinol in Body Fluids.—The test employed by Elliot and Barbour is a modification of one of the U. S. P. tests for resorcinol, some of which give no reaction for hexylresorcinol. To 2 c.c. of urine or fluid to be tested 0.25 c.c. each of 40 per cent. potassium hydroxid and chloroform is added. This mixture is boiled gently until one minute after the chloroform has been driven off. A pink color develops, usually strongest after standing for five minutes. When doubt exists as to the development of the color an unboiled control test should be performed. In distilled water hexylresorcinol can be detected in dilution of 1:100,000; in urine, 1:50,000; in serum, 1:25,000. If a 1:5,000 dilution of hexylresorcinol is added to bile, a pink color can be detected in the foam after the reagents have been boiled.

Adolescent Myxedema.—Davidson's patient was 17 years of age. Besides the myxedema she also had a nephrosis and tetany of parathyroid origin. She was treated successfully with thyroid and Collip's parathyroid extract. The patient died and a necropsy was made. No definite abnormality was found, except in the thyroid, parathyroids and kidneys. The postmortem findings are in agreement with the original diagnosis of subthyroidism, subparathyroidism and chronic nephrosis.

Atelectasis.—Farris reports seven cases to demonstrate that atelectasis of the lung occurs not infrequently, especially among patients in a tuberculosis institution, and that it is frequently confused with fibrosis.

Ultraviolet Ray Therapy of Tuberculosis.—Wright says that all forms of tuberculosis, except pulmonary and meningeal, are greatly improved by ultraviolet therapy. In active pulmonary tuberculosis and in tuberculous meningitis, ultraviolet therapy is contraindicated. Bone tuberculosis, skin tuberculosis, tuberculous adenitis, tuberculous peritonitis and pleurisy with effusion are among the forms most successfully treated. In the absence of heliotherapy, ultraviolet radiations from either the carbon arc or the mercury vapor lamp are the logical substitute; but, with artificial ultraviolet therapy, fresh air must be an important adjunct of the treatment. If it is felt in institutions particularly interested that heliotherapy itself must be applied, quartz window panes may be substituted for glass. After all, however, pure sunlight and fresh air are the real thing which artificial phototherapy is trying to imitate—and ignorance and greed may combine to form a so-called substitute for the ultraviolet ray which the superstitious and gullible public will accept as the real thing. The real use of these lamps, then, is to "carry on" when and where sunlight is not to be had.

Florida Medical Association Journal, Jacksonville

12: 27-58 (Aug.) 1925

Cancer of Lip; Resultant Deformity; Plastic Repair. J. E. Boyd, Jacksonville.—p. 27.
Plastic Repair of Mutilating Operations of Lip and Cheek Following Radical Removal of Carcinoma. F. A. Copp, Jacksonville.—p. 29.
Focal Infection as Related to Systemic Disease. A. T. Summers, Miami.—p. 35.
Traumatic Corneal Injuries; Cases. P. M. Lewis, Orlando.—p. 37.
Fifty Years of Health Work in Florida. II. J. Y. Porter.—p. 40.
Endarteritis Obliterans. H. E. Palmer, Tallahassee.—p. 43.
Sporotrichosis; Cases. S. R. Edwards, Fort Lauderdale.—p. 43.

Georgia Medical Association Journal, Atlanta

14: 312-356 (Aug.) 1925

Irritable Bladder. W. L. Bazemore, Macon.—p. 312.
Report on 2,000 Infants Fed on Dry Milk. M. M. McCord, Rome.—p. 316.
*Intravenous Mercurochrome in Treatment of Acute Articular Rheumatism. J. F. Covington, Moultrie.—p. 320.

Mercurochrome in Acute Articular Rheumatism.—Covington relates the case of his daughter, aged 9, who following an attack of tonsillitis developed an acute articular arthritis involving all the joints of her extremities. One intravenous injection of 10 c.c. of a 1 per cent. solution of mercurochrome is said to have effected a cure.

Journal of Comparative Neurology, Philadelphia

39: 1-171 (Aug.) 1925

Studies of Pineal Body. I. Postnatal Growth of Pineal Body of Albino Rat. Y. Izawa, Philadelphia.—p. 1.
Development of Neural Folds and Cranial Ganglia of the Rat. H. B. Adelmann, Ithaca, N. Y.—p. 19.

Journal of Experimental Medicine, Baltimore

42: 123-274 (Aug.) 1925

Antigens of Red Blood Corpuscles. K. Landsteiner and J. van der Scheer, New York.—p. 123.
Lipoids as Growth-Inhibiting Factor in Serum. L. E. Baker and A. Carrel, New York.—p. 143.
*Effect of Prepuberty Castration on Subsequent Cancer Implantation. J. B. Murphy and E. Sturm, New York.—p. 155.
Effects of Obscure Lesions on Organ Weights of Apparently Normal Rabbits. W. H. Brown, L. Pearce and C. M. Van Allen, New York.—p. 163.
*Influence of Autonomic Nervous System on Function of Thyroid. J. H. Crawford and J. N. J. Hartley, Edinburgh, Scotland.—p. 179.
*Histologic Changes in Thyroid of Rabbit Following Lobectomy. J. H. Crawford and J. N. J. Hartley, Edinburg, Scotland.—p. 193.
*Function of Macrophages in Local Resistance to Bacterial Infections. W. Nakahara, New York.—p. 201.
*Experimental Study of Relation of Ovary to Fat Metabolism. M. T. Burrows and C. G. Johnston, St. Louis.—p. 215.
*Relation of Vitamins to Reaction Induced by Coal Tar in Tissues of Animals. L. H. Jorstad, St. Louis.—p. 221.
Etiology of Heartwater (Hydropericardium). I. Observation of Rickettsia, Rickettsia Ruminantium (N. Sp.), in Tissues of Animals. E. V. Cowdry, New York.—p. 231.
Id. II. Rickettsia Ruminantium (N. Sp.), in Tissues of Ticks Transmitting Disease. E. V. Cowdry, New York.—p. 253.

Effect of Castration on Cancer Implantation.—Murphy and Sturm found that male and female mice castrated during the first seven weeks of life and implanted with cancer at later periods show a resistance definitely higher than do intact animals of the same age. This increased refractiveness is evident at three months after the operation but is more pronounced at from eight months to a year. Even castration in early adult life seems to increase the refractory state to later cancer inoculation. On the other hand, adult mice inoculated within a week after castration show slight, if any, evidence of increased resistance.

Influence of Nervous System on Function of Thyroid.—Crawford and Hartley assert that there is a marked individual variation in the histologic structure of the thyroid of rabbits examined at the same season under standard conditions. Although the microscopic appearance varies in different rabbits, the structure of the two lobes in the same animal does not differ. The variations are seen principally in the size and shape of the vesicles and in the quantity and character of the colloid. With one lobe as a control no histologic changes in the other lobe had been observed following section or stimulation of either the cervical sympathetic or the vagus and its branches.

Histologic Changes in Thyroid Following Lobectomy.—The changes which took place in the histology of the left lobe of the thyroid after excision of the right lobe have been studied by Crawford and Hartley at varied intervals of time. Two days after the removal of one lobe the other lobe showed a slightly increased colloid content, an increased vacuolation of the colloid, and a slight increase in the size of the epithelial cells. At the end of a week, the vesicles were greatly increased in size, distended with colloid, and the epithelial cells were flattened, while after three or four months signs of compensatory hypertrophy were present. The changes observed were uninfluenced by division of the vagus or cervical sympathetic.

Function of Macrophages in Resistance to Infection.—Nakahara demonstrates the ability of macrophages to dispose of pathogenic bacteria with but slight, if any, cooperation of polymorphonuclear elements.

Relation of Ovary to Fat Metabolism.—Burrows and Johnston are convinced that the follicular fluid of the ovary contains an active growth-stimulating substance and one capable of initiating an active digestion of a foreign fat, which might otherwise remain unabsorbed for an indefinite time in the tissues of these animals. Whether this substance exciting growth and a digestion of the oil is the same or in any way related to the substance exciting estrus in these animals was not determined. That it may be a different substance from the estrus-exciting substance is suggested, however, by the fact that a similar excitant of growth and fat digestion has recently been extracted by the same method from the corpus luteum of pigs. These extracts of corpora lutea have not excited estrus in spayed rats.

Relation of Vitamins to Tissue Reaction to Injury.—Jorstad has studied the tissue changes produced by coal tar. Drops of coal tar introduced into the subcutaneous tissue attract the fibroblasts, endothelial and other cells to them. These cells suffer degenerative changes through this action of the tar and the animal suffers cachectic-like changes and death from large doses of it introduced into the subcutaneous tissue. This action of the coal tar is limited to a short period of time, after which it becomes inert. The cells which have been drawn to it and which have not completely degenerated then slowly recover. Where large numbers of these cells are drawn to the tar, they grow and divide after recovering from the initial effects of the tar. Cancer may develop. Where only a few cells are drawn to the tar they lay down intercellular fibrils and a scar eventually develops. Vitamin A, fed in more than ample quantities to these animals, protects the animals and the cells against the toxic action of the tar and stimulates and prolongs their secondary growth. Vitamin B stimulates the secondary growth of these cells. This action is limited in extent and time. It is followed by an early degeneration and hyalinization of the tissue.

Journal of Metabolic Research, Morristown, N. J.

5: 1-143 (Jan., Feb., March) 1924

Preface to Karl Petrén's "Diabetes-Studier." B. Naunyn.—p. 1.
Studies on Diabetes. Karl Petrén, G. Blix, H. Malmros, M. Odin and E. Person, Lund, Sweden.—p. 7.
Influence of Insulin on *Carbohydrate Content of Blood and Tissues.* P. J. Cammidge and H. A. H. Howard, London.—p. 83.
Influence of Insulin on Activity of Diastatic Ferment of Liver. P. J. Cammidge and H. A. H. Howard, London.—p. 95.
*Diabetic Coma Complicated by Tuberculous Pneumothorax. E. G. Waters, Jersey City, N. J., and M. H. Ruby, Bridgeport, Conn.—p. 108.
Nutritional Requirements for Normal Reproduction. G. A. Hogan and H. M. Harshaw.—p. 111.
*Metabolic Observations in Psychiatric Cases. J. W. Sherrill, Morristown, N. J.—p. 129.

Diabetic Coma Complicated by Tuberculous Pneumothorax.—Some unusual clinical features of the case reported by Waters and Ruby are the recent occurrence of pneumothorax as a probable factor in precipitating coma, and the rapid recovery from the pneumothorax under diabetic treatment. The favorable progress of the tuberculosis under insulin treatment is similar to that already reported by a number of authors. As far as is known, the dosage of 450 units of *insulin is among the highest that has ever been given in* twenty-four hours to any patient who has recovered. The recovery of tolerance in such a case, to a point at which an adequate diet could be assimilated without need for insulin, is also noteworthy.

Metabolism in Psychiatric Cases.—The results obtained by Sherrill as regards suspected primary or secondary metabolic disorders in psychiatric cases and the therapeutic influence of various diets may be summed up under the following three heads: (1) Carbohydrate metabolism.—Blood sugar analyses and glucose tolerance tests in the miscellaneous forms of insanity gave results not specially different from those to be found in sane persons. No disturbance of carbohydrate metabolism was demonstrable as specifically connected with any form of nervous disease. (2) Chlorid metabolism.—The figures for plasma chlorids in the various types of insanity were similar to those found in normal persons or in other classes of patients. Strict chlorid free diets continued from fourteen to seventy-nine days gave no therapeutic benefits in dementia praecox, manic-depressive insanity, involutional melancholia, or epilepsy. (3) Fasting for epilepsy.—Four epileptics were subjected to complete fasting for two weeks. The seizures appeared to be diminished during the fast in most of the cases (though apparently aggravated in one case). No real therapeutic benefit resulted. In general, therefore, the chemical and dietetic methods here used have thrown no light upon the etiology, nature, diagnosis or treatment of nervous and mental disorders.

Kansas Medical Society Journal, Topeka

25: 245-282 (Aug.) 1925

Roentgen-Ray and Surgical Treatment of Goiter. E. P. Sloan, Bloomington, Ill.—p. 245.
Use of Skin Tests in Medicine. N. P. Sherwood, Lawrence.—p. 249.
Tryparsamide in Treatment of Neurosyphilis. W. C. Menninger, Topeka.—p. 254.
Convalescent Serum in Prophylaxis of Mumps. H. L. Dwyer, Kansas City.—p. 254.

Laryngoscope, St. Louis

35: 579-655 (Aug.) 1925

Labyrinthine Surgery. E. B. Dench, New York.—p. 579.
Gastro-Intestinal Disturbances in Infants, Result of Obscure Infection in Mastoid. A. M. Alden and H. W. Lyman, St. Louis.—p. 586.
Nature of Nutritional Disturbances. M. Marriott, St. Louis.—p. 592.
Chronic Suppurative Otitis Media. G. E. Shambaugh, Chicago.—p. 593.
Hematoma of Antrum. M. Ross, New York.—p. 600.
Bacterial Constants of Upper Respiratory Tract. S. J. Pearlman, Chicago.—p. 602.
Laryngeal Cancer; Treatment; Total Laryngectomy. F. O. Lewis, Philadelphia.—p. 607.
Foot Valve for Suction Apparatus. Device to Increase Its Efficiency. L. M. Hurd, New York.—p. 610.
Spontaneous Nystagmus, Vestibular and Functional Hearing Test Findings as Aids in Differential Diagnosis of Inner Ear and Eighth Nerve Affections. G. W. MacKenzie, Philadelphia.—p. 611.
Bronchial Flexible Aspirator. W. F. Moore, Philadelphia.—p. 623.

Maine Medical Association Journal, Augusta

16: 137-156 (Aug.) 1925

Public Status of Our Profession. F. W. Mann, Houlton.—p. 137.

Occupational Therapy and Rehabilitation, Baltimore

4: 235-310 (Aug.) 1925

Habit Retaining for Mental Patients. W. G. Ryon, New York.—p. 235.
Occupational Therapy for Chronic Arthritis Patients. M. Taylor, Boston.—p. 241.
Importance of Occupational Therapy. S. W. Hamilton, Philadelphia.—p. 245.
Progressive Rehabilitation of Handicapped. M. E. P. Lowney, Boston.—p. 253.
Occupational Worker and Trained Nurse. E. D. Bond, Philadelphia.—p. 261.
Occupational Therapy with Tubercular Patients. B. E. Lindberg.—p. 265.
Occupational Aide of Future. H. J. Hall.—p. 271.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

9: 385-432 (Aug.) 1925

Cavernous Optic Atrophy and Its Relation to Glaucoma. R. Pickard—p 385.
Derangements of Organo Vegetative Nervous System and of Endocrinian System in Essential Glaucoma H. Lagrange—p. 398.

British Medical Journal, London

2: 279-316 (Aug 15) 1925

Malignant Disease of Pelvic Organs. B P. Watson.—p. 279
Surgical Treatment of Pelvic Organs II. V. Bonney—p 281
Malignant Disease of Ovaries and Fallopian Tubes III. S. J. Cameron.—p 285.
*Two Cases of Tuberculous Splenomegaly. E. R. Carling and J. A. B. Hicks—p. 291
Difficulties in Diagnosis of Cerebellar Abscess R S Stevenson—p 292.
*Vaccine Treatment of Splenomegaly in Chronic Malaria R. E. Ingram-Johnson—p 293
Poisoning by Ivy. P H. J. Turton.—p. 294.
Transient Glycosuria Following Scorpion Sting. H. E King Fretz—p. 294

Tuberculous Splenomegaly.—One of these patients was aged 65. There was but a five weeks' history of progressive wasting and muscular weakness, with no particular complaint or symptoms other than those due to the presence of the splenic tumor. She had noticed for two or three years that her abdomen was getting bigger. The tumor filled the whole left upper and lower quadrants and the right lower quadrant of the abdomen. The right side of the tumor, on which the notch was recognizable, was somewhat mobile, while the left side of it seemed to be deeply anchored. Splenectomy was performed. The woman died on the fourth day. The only evidence of tuberculosis was found in the spleen. The second patient was only 28. Her symptoms were of six months' duration The spleen, firm and apparently smooth to the touch, occupied the whole left side of the abdomen, to 3 or 3½ inches below the umbilicus. Splenectomy was performed. For some weeks after discharge the patient picked up nicely, but she died six months later of generalized tuberculosis. In considering these two spleens, Carling and Hicks found that they had certain characteristic features in common, but presented certain well marked differences. A feature common to both was vascularity, with a change of the ordinary splenic structure into that of a moderately loose-meshed sponge, of which the interstices were for the most part filled with blood. Another similarity was a general increase in the interstitial fibrous connective tissue. In both spleens, some typical "giant cell" formations were found. From a surgical point of view the conclusion to be drawn from a study of these cases is that splenectomy should be performed early, and that irregular fever with splenomegaly should suggest tuberculosis.

Use of Blood Serum of Dengue Patients in Treatment of Splenomegaly in Chronic Malaria.—Being fully convinced that some antitoxin is formed in the blood of persons who have suffered from true dengue fever, which has a destructive action on the malaria parasite, Ingram-Johnson obtained a serum from the blood of persons just recovered from true dengue and experimented with it by intramuscular injection on children with chronic splenomegaly. In three cases cited the spleen receded to normal size. Ingram-Johnson suggested that by injections of this vaccine, artificial immunity from malaria can be procured The vaccine having such an effect on malaria parasites present in the circulation (even though not causing acute attacks of malaria) should, by its presence in the blood, prevent the proliferation of parasites injected into the blood as sporozoites by infected anopheles and hence should act as a prophylactic against the disease.

Edinburgh Medical Journal

32: 389 440 (Aug) 1925

Dr. Samuel Johnson and Medicine. R Hutchison—p 389.
Maldevelopment of Wrist and Hand. L Rogers—p 407
Spontaneous Arteriovenous Aneurysm in Thorax T Shennan—p 410.
Erythredema. J S Fowler. Transactions of Medico Chirurgical Society of Edinburgh—p 177.
Problems in Bacteriology of Puerperal Sepsis. J. Eeles. Transactions of the Edinburgh Obstetrical Society—p 115.

Journal of Laryngology and Otology, Edinburgh

40: 493 560 (Aug) 1925

Function of Vestibular Organ and Clinical Examination of Otolithic Apparatus. III. Past Pointing Test. F H Quix—p 493.
Otosclerosis: Does It Exist as Separate Disease? R. Lake—p 512.
Septic Tonsillitis Followed by Bilateral Acute Middle Ear Suppuration; Acute Mastoiditis, Acute Nephritis, Hemorrhage from Bowel and Secondary Anemia. Recovery. E. D D. Dickson—p 530.
Abductor Paralysis of Right Vocal Cord Subsequent to Scirrhus Cancer of Left Mamma A. L Turner.—p 534.
New Audiometry. G. Wilkinson—p. 538.

Glasgow Medical Journal

104: 65-120 (Aug) 1925

Delirium Associated with Physical Signs of Exophthalmic Goiter. I. S Skottoer—p 65

Journal of Mental Science, London

71: 353 630 (July) 1925

Mind and Brain. J. S. Bolton—p 357.
Vasomotor Reactions in Mental Disorders; Hemoclastic Crisis. I D Robertson—p 386
Interpretation of Some Sexual Offenses. W. N East—p 410.
Malarial Treatment of General Paralysis N B Graham—p 424
Sensitivity of Sympathetic Nervous System to Adrenalin in Some Cases of Mental Disorder W McWilliam—p 432
Value of Simple Laboratory Tests in Diagnosis of Neurosyphilis Compared with Wassermann Reaction S Grossman—p 439
Blood Sugar Studies in Mental Disorders. S. A Mann.—p 443
*Investigation of Cases of Early Mental Disorder by Levulose Test for Liver *Glycogenic Efficiency* S A Mann—p. 474.
Hemoclastic Crisis in Early Mental Cases A. A W Petrie—p. 482
Treatment of General Paralysis by Malaria. T W. Davidson—p 486

Levulose Test for Liver Efficiency in Mental Cases.—A summary of the results obtained at the Belfast Mental Hospital last year shows that out of fifty-five unselected cases of general paralysis in all stages of the disease, 36 per cent. were considerably improved and suitable for discharge. All these cases showed marked psychic improvement, but this improvement was not accompanied by a parallel one in the *physical signs* Serologically the improvement was less obvious. Apoplectiform seizures following the treatment were conspicuous by their absence. Complications are negligible and fatalities due to the treatment average not more than 10 per cent.—a percentage somewhat higher than the average of other workers. Graham says that malarial treatment is the more beneficial the earlier it is instituted in the course of the disease, and that it undoubtedly offers the best prospects of any treatment so far available of brightening the outlook in cases of general paralysis of the insane.

Journal of Obstetrics and Gynaecology of the British Empire, London

32: 201 432 (Summer) 1925

*Report on Prognosis and Treatment of Puerperal Sepsis—pp 201, 223.
*Premature Separation of Normally Implanted Placenta. J. W. Williams—p 259
*Inversion of Uterus W. McK. H McCullagh—p 280
*Puerperal Fever in Rotunda Hospital, Dublin. G FitzGibbon and J W Bigger—p 298
*Etiology of Puerperal Sepsis J. W Bigger and G FitzGibbon—p 318.
*Subperitoneal Gilliam Operation B Solomons—p. 330.
Absence of Vagina with Hematometra, Hematosalpinx and Tarry Cysts; Case W. E Fothergill—p. 336.
Primary Ovarian Pregnancy; Case J. M Gilmor, E. C. Smith and J B Gatenby—p 339.
Case of Endometriomyoma of Posterior Uterine Wall. F. Ivens—p 344.

Puerperal Sepsis.—This report is based on analyses of 249 cases, with recovery in 160 and death in eighty-nine. The analysis made of these cases suggests that the following should be considered to be of grave significance: (1) Onset of pyrexia during labor or within twenty-four hours of its termination. (2) Extensive tissue damage in the labor, particularly tearing of vagina and cervix rather than of perineum only. (3) Presence of streptococci in the blood. (4) Persistently high pulse rate. (5) Insomnia. (6) Diarrhea with or without general peritonitis. (7) General peritonitis, pneumonia, or delirium. Signs and symptoms of good prognostic significance are: (1) Absence of streptococci in the blood. (2) Moderately low pulse rate, about 120. (3) *Freedom* from insomnia and diarrhea.

Premature Separation of Normally Implanted Placenta.—Williams reports a fatal case of separation of the normally implanted placenta with concealed hemorrhage, in which the amount of blood lost was insufficient to account for the symptoms of shock, and in which necropsy failed to show the existence of toxemic lesions. The natural history of the accident in a series of forty cases is considered, and details are given of a patient who suffered from it in two successive pregnancies. Antepartum hemorrhage is almost as frequently associated with premature separation as with placenta praevia, fifty-seven and sixty-four cases, respectively, of the two conditions having been noted in 9,000 consecutive admissions. The prognosis is serious for the mother and alarming for the child, the mortality being 7.5 and 75.5 per cent., respectively. Most severe cases are associated with the uteroplacental apoplexy of Couvelaire, but not always. In many of the severe cases, preeclamptic toxemia, eclampsia, chronic nephritis or "essential hypertension" precede or accompany the accident. But in fifteen of the thirty-seven patients who survived delivery, albuminuria was entirely absent during the puerperium. If many of the severe cases are the result of a toxemia, Williams says, it must be admitted that its origin and mode of action are unknown. Evidence is adduced to show that traumatism, syphilis, inflammation of the decidua, shortness of the umbilical cord, and torsion of the pregnant uterus are rarely, if ever, concerned in the production of the accident. Ligneous consistence of the uterus was observed in about every third case. When present it is a pathognomonic sign, but its absence does not accord equally valuable negative evidence.

Inversion of Uterus.—McCullagh reports on three cases and gives the results of an analysis of 233 recently recorded cases, of which number 200 were associated with labor and thirty-three were due to tumor, i. e., 85 per cent. were puerperal.

Acute Puerperal Fever.—Among the fifty-seven cases of acute puerperal fever reviewed by FitzGibbon and Bigger in this paper, there were twenty-nine deaths, or 51 per cent. During the four years from which these infected cases were collected, there were 14,380 confinements attended, and of these forty appear as acute puerperal sepsis with sixteen deaths; this gives an incidence of infection of 2.8 per thousand and a mortality of 1.1 per thousand.

Etiology of Puerperal Sepsis.—Streptococci were found by Bigger and FitzGibbon in the vagina before and after delivery in 68 per cent. of the cases examined. Hemolytic streptococci were only found twice in the examination of 108 vaginal swabs. *Streptococcus pyogenes* was never found. The predominant nonhemolytic streptococci of the vagina were *S. fecalis* and *S. mitis*. Nonhemolytic streptococci were present in the postpartum uterus in at least 20 per cent. of the cases examined. The authors suggest that the commonest form of puerperal sepsis, that caused by hemolytic streptococci (and particularly *Streptococcus pyogenes)* is due to exogenous infection. Nonhemolytic streptococci occasionally cause puerperal sepsis.

Results from Gilliam Operation.—Solomons asserts that properly performed subperitoneal operation will cure the symptoms in nearly all cases of backward displacement of the uterus, whether mobile or fixed. There will be no postoperative complications nor trouble in labor. Furthermore, there can be no comparison between a subperitoneal shortening of the ligaments, and either an intraperitoneal shortening or any direct uterine suspension. The first is safe; the two last styles are fraught with dangerous possibilities.

Journal of State Medicine, London

33: 351-400 (Aug.) 1925

Progress in Military Hygiene. W. B. Leishman.—p. 351.
Industrial Hygiene. M. Muspratt.—p. 355.
Tropical Diseases. A. Balfour.—p. 360.
Pathology, Bacteriology and Bio-Chemistry; High Energy Chemistry and Vitamins. E. C. C. Baly.—p. 368.
Women and the Public Health. M. Hardy.—p. 377.
Relation of Filterable Viruses to Public Health. J. E. McCartney.—p. 378.
Sterilized Milk and Its Relation to Public Health. R. W. Lane.—p. 384.

Journal of Tropical Medicine and Hygiene, London

28: 277-296 (Aug. 1) 1925

*Studies of Yellow Fever Epidemic in Salvador, C. A., in 1924. H. R. Muller and C. B. Blaisdell.—p. 277.
Experimental Use of Fish Indigenous to British Guiana for Control of Mosquitoes Breeding in Vats, Tanks, Barrels and Other Water Containers. J. F. C. Haslam.—p. 284.

Yellow Fever Epidemic in Salvador.—Among nineteen persons who had recovered from clinically positive yellow fever in San Salvador, in 1924, in sixteen (84 per cent.) the serum gave a positive Pfeiffer test. Of five persons from the western part of the republic, who had passed through a disease which was clinically suspicious of yellow fever, the serum of two gave positive reactions. The tentative diagnosis of yellow fever in these two cases was thus confirmed by the Pfeiffer test. The serum of fifteen soldiers who had lived in San Salvador and in the same barracks where yellow fever had occurred gave negative reactions. Fifteen normal sanitary inspectors who had no history of yellow fever gave negative Pfeiffer reactions, while the test was positive in the case of one inspector who had had yellow fever in Peru four years previously. Twenty-two children, from 6 to 8 years of age, who had lived in San Salvador during the epidemic, all gave negative Pfeiffer reactions. Pfeiffer tests of the serum of vaccinated but otherwise normal persons showed that in some instances the lytic substances induced by vaccination may still be active against *Leptospira icteroides* after a lapse of five months. The pathologic findings in six cases of yellow fever are presented by Muller and Blaisdell. In the liver, zonal necrosis was present, and, more rarely, focal necrosis, together with marked fatty degeneration. Associated with these changes was a round cell infiltration and a milder polymorphonuclear infiltration. Mitosis and hemorrhages were frequently found. In the kidney there was evidence of acute tubular nephritis of varying intensity. Lime casts were present in two of the six cases. Their appearance suggested that they originated from desquamated epithelial cells which had become calcified. The suggestion is offered that lime casts are found in some but not all types of nephritis associated with yellow fever, occurring especially when desquamation is a feature.

Kenya Medical Journal, Nairobi, East Africa

2: 95-124 (July) 1925

Biology of Sleeping Sickness. G. D. H. Carpenter.—p. 96.
Rand Scurvy. J. L. Gilks.—p. 104.
Case of Hypernephroma. J. O. Beven.—p. 120.
Surgical Cases Seen in Native Hospital at Nairobi. C. V. Braimbridge.—p. 121.

Lancet, London

2: 415-480 (Aug. 29) 1925

Student's Number. Session 1925-1926.—pp. 415-458.

Medical Journal of South Africa, Johannesburg

20: 347-378 (July) 1925

Pyelography in Renal Disease. E. B. Fuller.—p. 348.
*Anemone Transvaalensis. M. G. Brandwyk and J. M. Watt.—p. 357.
Sterility in Women. G. Lange. II.—p. 360. Conc'n.
Law and the Doctor in South Africa. H. de Villiers. IV.—p. 366. Cont'd.

Anemone Transvaalensis.—The natives of the Helspruit district, and also Europeans, use this wild plant to relieve headache by crushing some fresh leaves in the hand and inhaling the vapor. A decoction, made by boiling the leaves and roots in water, is used as a lotion to wash festering wounds and to relieve poisonous bites. Brandwyk and Watt report on its pharmacology. The leaves of *Anemone transvaalensis,* when fresh, are irritating and produce blistering on the skin. This action is due to the presence of anemonol, which readily decomposes into anemonin and iso-anemonic acid, both of which are nonirritating. Its local action is too drastic, too penetrating and too slow for use in medicine, and is inferior to that of cantharis. The irritating properties of the plant are quickly and easily lost on drying. Chemically and pharmacologically, *Anemone transvaalensis* resembles very closely other irritating *Ranunculacae.* The use of a decoction seems illogical, as it is nonirritating and contains neither tannic acid nor alkaloids which might exert a local action.

Annales de l'Institut Pasteur, Paris

39: 641-716 (Aug.) 1925

*Vaccination of Monkeys Against Tuberculosis. J. Wilbert.—p. 641.
*Experimental Putrefaction. M. Weinberg and B. Ginsbourg.—p. 652.
Serum and Vaccine Therapy of Keratitis. Chaillous and Cotoni.—p. 685.
Physiologic Import of Iron and Zinc. Bertrand and Nakamura.—p. 698.
Physiologic Mutation in Mice. G. Bertrand and H. Nakamura.—p. 708.
Disease Resembling Typhoid in Rats. I. Gheorghiu.—p. 712.

Vaccination of Monkeys Against Tuberculosis.—Wilbert's article was reviewed editorially September 12, page 826.

Experimental Putrid Infection; Causal Factors and Therapy.—Weinberg and Ginsbourg's experiments consisted in inducing lesions of putrefaction in guinea-pigs. The process appears to be due to histolysis by bacilli, accompanied with formation of fetid substances. The principal proteolytic bacillus involved is *B. sporogenes*. The bacilli are associated with one or several toxic, nonproteolytic bacilli. An essential putrid infection is rare; frequently it complicates an acute or chronic infection of different nature. Usually several tissues are affected; sometimes the lesions are chiefly located in muscle or exclusively in skin and the subcutaneous cellular tissue. The lesions of the tissues may not be extensive, even when the fetidity is very pronounced; this occurs in putrid peritonitis or pleuritis. Grave lesions from putrefaction-inducing bacilli disappear spontaneously, if the bacilli are only slightly pathogenic. The authors assert that putrid infection is easily controlled by intravenous injections of specific serums against all the bacilli involved or, at least, against the predominant bacillus. The injection should precede an operation for removal of a gangrenous appendix, or gangrenous focus in the lung. Postsurgical complications may be avoided with the preliminary serotherapy.

Annales des Maladies Vénériennes, Paris

20: 481-560 (July) 1925

Syphilitic Jaundice. F. Sarateanu and M. Blumental.—p. 481.
Measures Against Syphilis in Russia. S. Bagotzky.—p. 489.
Tonic Action of Bismuth. G. Belgodère.—p. 504.
*Congenital Syphilis and Pregnancy. Récamier.—p. 515.

Congenital Syphilis Roused by Pregnancy.—Récamier treated four women, aged from 20 to 28 years, who first presented signs of syphilitic infection after the birth of the first baby. None of the women had an abortion, and the infants were normal. Investigation revealed that the fathers of the four women had a history of syphilis. The pregnancy seemed to have awakened the latent congenital syphilis. The efficiency of the specific treatment confirmed the diagnosis.

Archives des Maladies de l'App. Digestif, Paris

15: 513-630 (June) 1925

Clinical Estimation of the Metabolism. M. Labbé.—p. 513.
Insulin and Intermediate Carbohydrate Metabolism. J. A. Collazo. —p. 532.
*Albumin in Duodenal Juice. D. Simici and A. Téodoru.—p. 554.
Intestinal Actinomycosis. C. Cornioley and R. Hoffmann.—p. 576.
Tumors in Gastric Neurilemma (Schwannomas). Oettinger et al.—p. 592.
Entire Large Colon in Left Side. M. P. Weil and G. Détré.—p. 602.
*Nontabetic Gastric Crises. L. M. Lamy.—p. 605.
Lamblia in the Gallbladder; Three Cases. Labbé and Nepveux.—p. 609.

Diagnostic Value of Albumin in Duodenal Juice.—No albumin was found in the duodenal juice of eight healthy persons, examined by Simici and Téodoru. In seventeen cases of catarrhal jaundice, albumin was constantly present in the duodenal juice. The amount of albumin was larger in the beginning of the disease than at the end, but it persisted during convalescence, after other symptoms had disappeared. Albumin was found in the duodenal juice of five patients with jaundice from arsphenamin treatment; in three cases of angiocholitis; in two of hypertrophic cirrhosis of the liver, and in two of grave anemia—all associated with jaundice. Albumin was noted also in two patients with chronic constipation and in one with a tenia, without jaundice. Changes in the liver cell and its membrane are probably responsible for the passage of albumin. In catarrhal jaundice, the lesion of the hepatic cell is more important than the inflammation of the biliary ducts, since the increase of albumin is not accompanied by increase of mucin. Examination of duodenal juice for albumin may reveal a slight deficiency of the liver cell, clinically masked.

False Gastric Crises.—Tabes had been diagnosed in the old syphilitic, but the trouble proved to be a duodenal ulcer, cured by gastro-enterostomy.

Bulletin de l'Académie de Médecine, Paris

94: 833-853 (July 28) 1925

Measures Against Transmission of Smallpox by Imported Goods. Camus.—p. 835.
Sterilization of Coins and Bills. Hanriot et al.—p. 841.
Liver Deficiency Following Measles. F. Ladreyt.—p. 844.
Hypertrophy of the Hair System Near Site of Trauma. C. P. Caplesco.—p. 846.
Treatment of Rebellious Uterine Leukorrhea. O. Bottaro.—p. 850.

Journal de Radiologie et d'Electrologie, Paris

9: 305-352 (July) 1925

*Roentgen-Ray Treatment of Lymphocytoma. J. Belot et al.—p. 305.
Roentgen-Ray Diagnosis of Disease in the Large Intestine. R. Ledoux-Lebard.—p. 316.
Roentgen Rays of Moderate Penetrating Force. J. Belot.—p. 321.
Treatment of Epidemic Poliomyelitis. Delherm and Laquerrière.—p. 329.

Action of Roentgen Ray on Cancer of Lymphocytoma Type.—Belot and his co-workers treated, during the course of a year, a tuberculous woman, aged 47, with fifty-eight tumors of this type, the size ranging from that of a nut to a large fist. They exposed each tumor in turn, and each became reduced in size by a third in eighteen hours after exposure to from 8 to 10 roentgen units, and had clinically disappeared by the fourth day. No toxic phenomena were noted, although two or three tumors were treated each week. A lymphocytoma which developed in the orbit two years later was also exposed to 10 roentgen units, and the tumor and secondary exophthalmos subsided in five days. In one of several other lymphocytoma cases a tumor of the breast disappeared under 15 units in twelve days, and tumors of the face and chest in a few days. Under exposure to 20 roentgen units a tumor in a man's axilla disappeared in five days, and one in the thyroid region in eight days. This patient died six months later, probably from a deep tumor in the thorax. Obviously the prognosis of the disease is still grave, since recurrences and metastases are frequent. The serial microscopic findings in the first case confirmed the destruction of the cancer cells by the rays, the intense diapedesis of macrophages, and the intense phagocytosis.

Marseille Médical

62: 945-988 (June 5) 1925

*Autoserotherapy in Epidemic Encephalitis. D. Paulian.—p. 945.
Heart of Double Monsters. F. Corsy.—p. 956.

Intraspinal Injections of Autoserum in Treatment of Epidemic Encephalitis.—Paulian applied this method in acute encephalitis and in over thirty patients with postencephalitic parkinsonism. From 40 to 50 c.c. of blood were withdrawn, and the serum inactivated at 56 C. A dose of 10 or 15 c.c. was injected intraspinally, after an equal amount of cerebrospinal fluid had been removed. The patient then reclined (without pillow) for twenty-four hours. In two cases, among others, of acute encephalitis in young girls, a single injection was followed by improvement the next day, and complete recovery of one patient the fifth day. In cases of postencephalitic sequelae from one to six injections were required; sometimes the injections were resumed after three months, and then given daily for three months. Change in the attitude and facial expression, and reappearance of the automatic movements of the arms, in walking, were noted after the first injection. The recovery has persisted in eight patients for several months to date; in others a considerable amelioration was manifest. In several cases intravenous injections of 5 c.c. of a 25 per cent. solution of sodium salicylate were given supplementary to the intraspinal autoserotherapy. He queries whether the autoserum induces an intensive reaction in the nervous centers and a certain immunity, or whether the serum contains specific antibodies against the disease.

Presse Médicale, Paris

33: 1105-1120 (Aug. 19) 1925

Tabetic and Cerebellar Ataxia. L. Bard.—p. 1105.
Access to Posterior Hydatid Cysts of the Liver. Costantini.—p. 1107.
Mechanism of Mountain Sickness. L. Binet.—p. 1109.

33: 1121-1136 (Aug. 22) 1925

Tuberculosis and Nocardiosis. H. Gougerot.—p. 1121.
*Hemotherapy in Psychoses. Pascal and Davesne.—p. 1126.

Hemotherapy in Mental Disorders.—Pascal and Davesne treated by injections of whole blood three patients with a grave form of dementia praecox and three with an acute form of hebephrenia and catatonia. The blood was taken from insane patients during a period of remission induced by hemotherapy, nuclein or turpentine shock. In five instances the blood groups corresponded with those of the patients. Six intramuscular injections, each of 20 c.c. of blood, were given at two day intervals, before meals. Sometimes 5 or 10 c.c. were given in the first injection, 15 or 20 c.c. in the next. No complications were noted with the treatment. Two patients recovered; in three the psychosis temporarily improved. In one case the result was negative. This blood injection treatment may be indicated for the insane with insufficient nourishment and poor general condition; also in women with irregular menses. It seems to be the treatment of choice in different forms of melancholia, and in compensating the mineral deficiency in maniacal conditions.

Revue Médicale de la Suisse Romande, Geneva

45: 545-608 (July 25) 1925

Calculi in Urinary Passages. H. Curchod.—p. 545.
Appendicitis in Child with Acetonemic Periodical Vomiting. J. Roux and R. Masson.—p. 551.
*Sedimentation Test in Tuberculosis. Willy Racine.—p. 556.
*Peritonitis from Pancreatitis. L. Choquard.—p. 590.

Sedimentation Test in Pulmonary Tuberculosis.—Racine's 406 monthly tests on 106 subjects at Leysin confirmed that regularly accelerated speed is an unfavorable omen. The extent of the pathologic process and the progressing character of the lesion determine the state of the balance between the forces of molecular attraction and of electric repulsion of the erythrocytes.

Acute Pancreatitis.—Transudation through the apparently intact walls of the pseudocyst was responsible for the diffuse peritonitis in the multipara, aged 29. She recovered after drainage of the cavity and clearing 200 cholesterol calculi out of the gallbladder.

Schweizerische medizinische Wochenschrift, Basel

55: 749-776 (Aug. 13) 1925

An Introduction to Climatology. G. Michel.—p. 749.
Effects of High Altitude. A. Loewy.—p. 750.
The Nucleal Blood Reaction. A. Kamsler.—p. 751.
Recent Research on the Vegetative Nerve System. A. Kamsler.—p. 752.
Metabolism Under Reduced Atmospheric Pressure. W. Laubender.—p. 754.
*Idem. A. Jaquet.—p. 755.
Treatment of Large Tuberculous Cavities. G. Rossel.—p. 760.
Blood Proteins in Diagnosis of Tuberculous Activity. E. Brieger.—p. 763.
On Medical History in Japan. Gigon.—p. 771.

55: 777-796 (Aug. 20) 1925

Leukocytosis in Appendicitis. A. Fonio.—p. 777.
Serodiagnosis of Tuberculosis. H. Würz.—p. 783.
A Case of Ovarian Cancer in Full Term Pregnancy. R. L. Rochat.—p. 787.
Physicians and the Legislation on Alcohol. A. Koller.—p. 788.

Metabolism Under Reduced Atmospheric Pressure.—Ehrlich presented convincing experimental evidence for the theory that arsenic compounds are toxic for the animal organism only when the arsenic is in the trivalent state. On the basis of this theory, Jaquet took the minimal lethal dose of pentavalent arsenicals (atoxyl and sodium cacodylate) as a means to measure the reduction processes in the rabbit under various atmospheric pressures. He found that under a pressure which is equal to an altitude of 1,800 meters, the lethal dose of these arsenicals is reduced by 22-23 per cent. as compared to the lethal dose under 760 mm. pressure. This demonstrates that even at an altitude which usually does not produce any subjective symptoms, the metabolic processes are altered.

Archivio Italiano di Chirurgia, Bologna

11: 445-548 (June) 1925

*Skin Grafts. A. Bertocchi.—p. 445.
*Sequelae of Grafting. Oreste Andrei.—p. 483.
Tooth Plate in Bronchus. Benedetto Agazzi.—p. 511.
The Reticular Tissue in Repair After Wounds. F. Usuelli.—p. 517.
Cystic Epiphysitis of Femur. Francesco Virgillo.—p. 538.

Skin Grafts.—Bertocchi made sixty-five experiments on rabbits which demonstrated the advantages of using skin conserved in alcohol or other fixing agent when it is impracticable to use autografts. The graft does not heal in place like an autograft, but there is gradual reconstruction of tissue under the guidance of the flap, utilizing some of its elements.

Production of Bone or Cartilage After Ingrafting of Tissues.—Subcutaneous implantation in the rabbit or guinea-pig ear of scraps of certain living tissues or tissues treated with a fixing agent may lead to production of bone or cartilage at the point. Implantation in back or thigh was always negative, as also in dogs' ears.

Clinica Medica Italiana, Milan

56: 193-290 (June) 1925

*The Combined Sugar in Diabetes. V. Bisceglie.—p. 215.
*Syphilis of the Stomach. Luigi Ajello.—p. 227.
Experimental Lead Poisoning. Luigi Scremin.—p. 244.
*Chronic Infectious Endocarditis. A. Ceresoli.—p. 256.

The Combined Sugar in Diabetes.—Bisceglie reports experiences which confirm that the absolute and proportional amounts of the combined sugar in relation to the free sugar in the blood are doubled in diabetes. This is even more pronounced under the influence of insulin; as the free sugar drops, the relative amount of combined sugar increases. The hypoglycemia from insulin may be due in part to the transformation of the free sugar into the combined form.

Syphilis of the Stomach.—Ajello analyzes the necropsy records in the literature, classifying under seven headings the manifestations of syphilis in the stomach. A case described in detail presented a nodular sclerogummatous infiltration.

Chronic Infectious Endocarditis.—Ceresoli adds nine new cases of endocarditis lenta to the sixty already published in Italy. He confirms the etiologic importance of *Streptococcus viridans*, and the well defined clinical and histologic findings of this morbid entity.

Policlinico, Rome

32: 867-897 (June 22) 1925

*Membrane-Filtered Serums. E. Trenti.—p. 867.
Primary Cancer of Liver in Boy. C. Arrigoni.—p. 873.
Curetting the Uterus. N. Federici.—p. 876.

Biologic Reaction of Serums Filtered Through Collodion.—Trenti accepted the nonpassage of globulin through the collodion sac under pressure (60 cm. of mercury) as a reliable gage of the permeability of the sac. The filtrate of a serum that previously agglutinated typhoid bacilli and the melitensis had not a trace of agglutinating power left. The Wassermann and the Sachs-Georgi reactions were always negative in the filtered serum (twenty syphilitics; ten controls), but the reaction occurred with great intensity when the residuum was diluted, even with distilled water which must have upset the colloid balance.

32: 1077-1108 (Aug. 3) 1925

Treatment of Malaria. V. Ascoli.—p. 1077.
*Gonococcus Pyelonephritis. C. F. Bianchetti.—p. 1081.
"Bacterial Calculi" in Kidney Pelvis. E. Venezian.—p. 1083.

Gonococcus Pyelonephritis.—Bianchetti's patient, a woman of 52, had had bladder disturbances for five years, recurring in spite of repeated treatment. Finally vague oppression in one kidney region led to the discovery of multiple gonococcus abscesses in this kidney. A complete and permanent cure followed clearing out the abscesses and draining.

32: 1143-1173 (Aug. 17) 1925

Spa Treatment of Cholelithiasis. G. Sabatini.—p. 1143.
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32: 373-420 (Aug. 15) 1925. Surgical Section

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Riforma Medica, Naples

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41: 697-720 (July 27) 1925

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*Malaria. M. Battaglia.—p. 705.
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Rivista di Clinica Pediatrica, Florence

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Medicina, Mexico City

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Tolerance for Carbohydrates.—Zuckermann tabulates the findings in fifteen healthy persons on a test diet. They demonstrate, he says, that glycosuria is not a reliable index for the tolerance of glucose. The glucose content of the blood has to reach 0.17 or 0.18 per cent. before glucose appears in the urine, and there is always some delay in this. The index should regard both the quantity and the time, both the delay and the elimination per minute.

Presse Médicale, Paris

33: 1105-1120 (Aug. 19) 1925

Tabetic and Cerebellar Ataxia. L. Bard.—p. 1105.
Access to Posterior Hydatid Cysts of the Liver. Costantini.—p. 1107.
Mechanism of Mountain Sickness. L. Binet.—p. 1109.

33: 1121-1136 (Aug. 22) 1925

Tuberculosis and Nocardiosis. H. Gougerot.—p. 1121.
*Hemotherapy in Psychoses. Pascal and Davesne.—p. 1126.

Hemotherapy in Mental Disorders.—Pascal and Davesne treated by injections of whole blood three patients with a grave form of dementia praecox and three with an acute form of hebephrenia and catatonia. The blood was taken from insane patients during a period of remission induced by hemotherapy, nuclein or turpentine shock. In five instances the blood groups corresponded with those of the patients. Six intramuscular injections, each of 20 c.c. of blood, were given at two day intervals, before meals. Sometimes 5 or 10 c.c. were given in the first injection, 15 or 20 c.c. in the next. No complications were noted with the treatment. Two patients recovered; in three the psychosis temporarily improved. In one case the result was negative. This blood injection treatment may be indicated for the insane with insufficient nourishment and poor general condition; also in women with irregular menses. It seems to be the treatment of choice in different forms of melancholia, and in compensating the mineral deficiency in maniacal conditions.

Revue Médicale de la Suisse Romande, Geneva

45: 545-608 (July 25) 1925

Calculi in Urinary Passages. H. Curchod.—p. 545.
Appendicitis in Child with Acetonemic Periodical Vomiting. J. Roux and R. Masson.—p. 551.
*Sedimentation Test in Tuberculosis. Willy Racine.—p. 556.
*Peritonitis from Pancreatitis. L. Choquard.—p. 590.

Sedimentation Test in Pulmonary Tuberculosis.—Racine's 406 monthly tests on 106 subjects at Leysin confirmed that regularly accelerated speed is an unfavorable omen. The extent of the pathologic process and the progressing character of the lesion determine the state of the balance between the forces of molecular attraction and of electric repulsion of the erythrocytes.

Acute Pancreatitis.—Transudation through the apparently intact walls of the pseudocyst was responsible for the diffuse peritonitis in the multipara, aged 29. She recovered after drainage of the cavity and clearing 200 cholesterol calculi out of the gallbladder.

Schweizerische medizinische Wochenschrift, Basel

55: 749-776 (Aug. 13) 1925

An Introduction to Climatology. G. Michel.—p. 749.
Effects of High Altitude. A. Loewy.—p. 750.
The Nucleal Blood Reaction. A. Kamsler.—p. 751.
Recent Research on the Vegetative Nerve System. A. Kamsler.—p. 752.
Metabolism Under Reduced Atmospheric Pressure. W. Laubender.—p. 754.
*Idem. A. Jaquet.—p. 755.
Treatment of Large Tuberculous Cavities. G. Rossel.—p. 760.
Blood Proteins in Diagnosis of Tuberculous Activity. E. Brieger.—p. 763.
On Medical History in Japan. Gigon.—p. 771.

55: 777-796 (Aug. 20) 1925

Leukocytosis in Appendicitis. A. Fonio.—p. 777.
Serodiagnosis of Tuberculosis. H. Würz.—p. 783.
A Case of Ovarian Cancer in Full Term Pregnancy. R. L. Rochat.—p. 787.
Physicians and the Legislation on Alcohol. A. Koller.—p. 788.

Metabolism Under Reduced Atmospheric Pressure.—Ehrlich presented convincing experimental evidence for the theory that arsenic compounds are toxic for the animal organism only when the arsenic is in the trivalent state. On the basis of this theory, Jaquet took the minimal lethal dose of pentavalent arsenicals (atoxyl and sodium cacodylate) as a means to measure the reduction processes in the rabbit under various atmospheric pressures. He found that under a pressure which is equal to an altitude of 1,800 meters, the lethal dose of these arsenicals is reduced by 22-23 per cent. as compared to the lethal dose under 760 mm. pressure. This demonstrates that even at an altitude which usually does not produce any subjective symptoms, the metabolic processes are altered.

Archivio Italiano di Chirurgia, Bologna

11: 445-548 (June) 1925

*Skin Grafts. A. Bertocchi.—p. 445.
*Sequelae of Grafting. Oreste Andrei.—p. 483.
Tooth Plate in Bronchus. Benedetto Agazzi.—p. 511.
The Reticular Tissue in Repair After Wounds. F. Usuelli.—p. 517.
Cystic Epiphysitis of Femur. Francesco Virgillo.—p. 538.

Skin Grafts.—Bertocchi made sixty-five experiments on rabbits which demonstrated the advantages of using skin conserved in alcohol or other fixing agent when it is impracticable to use autografts. The graft does not heal in place like an autograft, but there is gradual reconstruction of tissue under the guidance of the flap, utilizing some of its elements.

Production of Bone or Cartilage After Ingrafting of Tissues.—Subcutaneous implantation in the rabbit or guinea-pig ear of scraps of certain living tissues or tissues treated with a fixing agent may lead to production of bone or cartilage at the point. Implantation in back or thigh was always negative, as also in dogs' ears.

Clinica Medica Italiana, Milan

56: 193-290 (June) 1925

*The Combined Sugar in Diabetes. V. Bisceglie.—p. 215.
*Syphilis of the Stomach. Luigi Ajello.—p. 227.
Experimental Lead Poisoning. Luigi Scremin.—p. 244.
*Chronic Infectious Endocarditis. A. Ceresoli.—p. 256.

The Combined Sugar in Diabetes.—Bisceglie reports experiences which confirm that the absolute and proportional amounts of the combined sugar in relation to the free sugar in the blood are doubled in diabetes. This is even more pronounced under the influence of insulin; as the free sugar drops, the relative amount of combined sugar increases. The hypoglycemia from insulin may be due in part to the transformation of the free sugar into the combined form.

Syphilis of the Stomach.—Ajello analyzes the necropsy records in the literature, classifying under seven headings the manifestations of syphilis in the stomach. A case described in detail presented a nodular sclerogummatous infiltration.

Chronic Infectious Endocarditis.—Ceresoli adds nine new cases of endocarditis lenta to the sixty already published in Italy. He confirms the etiologic importance of *Streptococcus viridans*, and the well defined clinical and histologic findings of this morbid entity.

Policlinico, Rome

32: 867-897 (June 22) 1925

*Membrane-Filtered Serums. E. Trenti.—p. 867.
Primary Cancer of Liver in Boy. C. Arrigoni.—p. 873.
Curetting the Uterus. N. Federici.—p. 876.

Biologic Reaction of Serums Filtered Through Collodion.—Trenti accepted the nonpassage of globulin through the collodion sac under pressure (60 cm. of mercury) as a reliable gage of the permeability of the sac. The filtrate of a serum that previously agglutinated typhoid bacilli and the melitensis had not a trace of agglutinating power left. The Wassermann and the Sachs-Georgi reactions were always negative in the filtered serum (twenty syphilitics; ten controls), but the reaction occurred with great intensity when the residuum was diluted, even with distilled water which must have upset the colloid balance.

32: 1077-1108 (Aug. 3) 1925

Treatment of Malaria. V. Ascoli.—p. 1077.
*Gonococcus Pyelonephritis. C. F. Bianchetti.—p. 1081.
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Pediatría Española, Madrid

14: 161-192 (June) 1925

*Treatment of Chorea. J. de Cardenas y Pastor.—p. 161.
Two Cases of Monosymptomatic Glomerular Nephritis, J. Gonzalez Edo. —p. 178.

Treatment of Chorea.—Keeping the child in bed is regarded as an essential element in the treatment of chorea by de Cardenas. He has found hexamethylenamin by the vein useful in epidemic encephalitis, and consequently gave it a trial in eleven cases of tenacious chorea in children, aged 6 to 12. Improvement was evident by the third injection, and one was cured with five in eleven days. In one child eighteen injections were made in six weeks, increasing from the usual dose of 2 c.c. of a 5 per cent. solution to 6 c.c. Typhoid developed a week later and proved fatal within a month. This case disproves the alleged prophylactic action of hexamethylenamin in respect to typhoid. In a more recent series of two cases of chorea he used a 10 per cent. solution with good results.

Revista de Cirugía, Buenos Aires

4: 97-144 (June) 1925

Treatment of Intestinal Occlusion. V. Pauchet.—p. 97.
Surgery of the Thyroid. R. V. Hernández.—p. 105.
Shifting the Ulnar Nerve. Alberto Gutiérrez.—p. 116.
*Arteriovenous Aneurysm at the Elbow. M. Corachan.—p. 124.
Surgical Treatment of Artificial Anus. Avelino Gutiérrez.—p. 134.
Perforation of Side-to-Side Entero-Anastomosis. E. Cornejo Saravia.—p. 137.
*Hydatid Cyst in Muscle. C. Velasco Suárez.—p. 139.
Spontaneous Rupture of Epigastric Artery. R. Donovan.—p. 142.

Arteriovenous Aneurysm at the Elbow.—The aneurysm had developed after the man had cut himself accidentally just above the bend of the elbow. Corachan did not extirpate the aneurysmal sac, but resected the artery, with an end-to-end suture. The illustrations show the technic and the apparently complete cure of all disturbances to date (four months).

Hydatid Cyst in the Abdominal Rectus Muscle.—Velasco Suárez has been able to find records of only four cases of a hydatid cyst in muscle tissue, and adds a fifth to the list. It had evidently started in the muscle but had developed inward toward the posterior sheath of the muscle, simulating an ovarian cyst.

Revista Médica del Rosario

15: 67-106 (April) 1925

Apparently Normal Pregnancy and Delivery with Cancer of the Uterine Cervix. P. Ferrazini.—p. 67.
*Trachoma in Rosario. C. Weskamp.—p. 80.
*Liver Function Test in Pregnancy. J. Watson.—p. 85.
Comparison of the Phenolsulphonephthalein Test and the Ambard Index of Urea Excretion. C. Alvarez.—p. 96.

Trachoma in Argentina.—Weskamp relates that 8.7 per cent. had trachoma of the 4,500 eye patients treated at the Hospital Español at Rosario, in the state of Sante Fé, during the years 1921 to 1923. At Buenos Aires the proportion averaged only 4 per cent., while in 1910 the same observer (Demaria) found 10.3 per cent. trachomatous. At Rosario 48 per cent. of those affected had been born in Argentina.

Liver Function Test in the Pregnant.—Watson applied to eleven pregnant women Rosenthal's phenoltetrachlorphthalein test. The response indicated that the liver function was below par after the fifth or sixth month. His impression is favorable to the use of this test to distinguish between a neurotic and a toxic origin for the vomiting of pregnancy, as suggested by Krebs and Dieckmann.

Revista Mexicana de Biologia, Mexico City

5: 361-386 (July) 1925

Syphilitic Origin of Unilateral Dystrophia. Pittaluga.—p. 361.
*Implanting the Sclerotic on the Capsule of Tenon. A. F. Alonso.—p. 369.
Different Types of Histologic Structure in the Nervous System. I. Ochoterena.—p. 374.
Clinical Study of Ascarids. E. Pous Cházaro.—p. 382.

The Sclera Implanted on the Capsule of Tenon.—Alonso clears out the sclerotic coat in enucleating the eye, drawing it inside out like a glove finger, and removing every trace of the uvea. The sclera is rinsed with physiologic solution and is then restored to its normal position inside the capsule of Tenon, to which it is fastened with U sutures and not merely at the edges. The illustrations of the three cases in which he has applied this method sustain his statements that the use of the artificial eye will appear much more natural with this technic.

Revista de la Soc. de Med. Interna, Buenos Aires

6: 73-175 (June) 1925

Ayerza's Disease: the "Black Cardiacs." L. Ayerza.—p. 73.
Etiology of Orthostatic Albuminuria and Glycosuria. Waldorp.—p. 84.
Fistula Between Jejunum and Colon. G. Peco.—p. 123.
*Radiotherapy in Asthma. M. Miranda Gallino and M. Malter Terrada.—p. 132.
*Insulin in Treatment of Hyperthyroidism. F. Puchulu.—p. 140.
*Treatment of Tuberculous Diabetics. Roque A. Izzo.—p. 164.

Radiotherapy of Asthma.—The spleen was irradiated with half the skin dose of penetrating roentgen rays, and 46 per cent. of the twenty-six patients were completely cured: 38 per cent. much improved, and no benefit was apparent in 8 per cent. Two of the patients had such severe attacks of the asthma the day after the first irradiation that they refused to continue the treatment. The asthma was of long standing, from fifteen to twenty-five years in seven and for more than eight years in five, all in the group of complete cures after from one to three exposures. There has been no return of the asthma in the six to fourteen months since. In one case the chest was exposed in addition to the spleen.

Insulin in Treatment of Hyperthyroidism.—Puchulu states that treatment with 5 or 10 units of insulin had a favorable influence on the general condition; the weight increased and the patients became more tranquil, but the vegetative functions, the pulse, the systolic blood pressure, the glycemia, basal metabolism and menstruation did not seem to be influenced by the insulin. In the discussion, Waldorp mentioned a case of exophthalmic goiter with material improvement under insulin treatment.

Insulin in Treatment of Tuberculous Diabetics.—No unfavorable influence on the pulmonary disease could be detected from the insulin in the twenty cases reported.

Sciencia Medica, Rio de Janeiro

3: 389-437 (June 30) 1925

Subarachnoid Injection of Iodized Oil in Diagnosis of Tuberculous Spondylitis. Vampre et al.—p. 393.
*Mechanism of Diuresis Induced by Novasurol. O. de Mello Campos.—p. 414.
Some Nematodes of Arthropods. Lauro Travassos.—p. 416.

Mechanism of the Diuretic Action of Novasurol.—De Mello Campos states that the drug seems to unlock the tissues in dropsy, and thus allow the passage of the excess of water into the blood. This preliminary hydremia precedes the diuresis and explains it. Surprising results have been obtained with novasurol sometimes in cases of dropsy in Libanio's service, all with both heart and kidney derangement. Hydrophilia of the tissues is the special indication for this drug; unfortunately it has the disadvantages of all mercurials for patients with anasarca.

Semana Médica, Buenos Aires

2: 1-56 (July 2) 1925

*Ray Semeiology of the Respiratory Apparatus. A. Viton.—p. 1.
Biologic Bases for Radiotherapy of Cancer. Brachetto-Brian.—p. 25.
*Cure of Tuberculoma of Iris Under Tuberculin. P. Satanowsky.—p. 29.
*Vaccines in Surgery. A. Galindez.—p. 32.

Radiology of the Respiratory Apparatus.—Viton discusses the interpretation of the roentgen-ray findings in different pathologic conditions in the bronchi, lungs, pleura and mediastinum, reproducing seventy-five typical roentgenograms.

Tuberculoma of the Iris Successfully Treated with Tuberculin.—Satanowsky ascribes to the tuberculin treatment the subsidence of a tuberculoma of the iris in a woman of 33. Extremely minute doses were given, twice a week, for a period of five months. In a case of tuberculous iridocyclitis there was a febrile reaction to a dose of tuberculin representing 0.1 c.c. of the twenty zero dilution of the tuberculin, but the first patient bore this amount without a general reaction, and recovered under progressive treatment, gaining 3 kg. in weight while continuing at work throughout.

Vaccines in Surgery.—Galindez' experience in 100 cases confirms the advantages of preliminary injection of a polyvalent vaccine before operations. He injects 1 c.c. of the vaccine three days before the operation and 2 c.c. the day before. During the year since this has been his practice he has had no instance of pulmonary complications—an unprecedented freedom from postoperative mishaps. His list includes sixty abdominal operations and others for mastitis, leg ulcers, etc, and ambulant affections.

Archiv für klinische Chirurgie, Berlin

136: 627-803 (Aug. 14) 1925

*Hemostatic Effect of Tranfusions H. Wildegans—p. 627.
Cerebrospinal Fluid and Cerebral Edema. G. Magnus and W. Jacobi. —p 652.
Blood Chemistry in Varicose Veins W. Schaefer.—p. 661.
A Theory on Inflammation P. Grawitz—p. 678
A Case of Perthes' Disease. G. Büttner.—p. 703.
Traumatic Sarcoma of the Bone J. Sebestyén—p 716.
*Hernias of the Semilunar Line S. L. Koljubakin—p. 739.
*Calcium Content of Blood and Pus F. Schulze and E Scheller.—p. 763.
*The Blood Proteins After Operation. H. Hueck—p. 774.
Cardiospasm in Cancer of the Cardia. J. Palugyay.—p. 795.

The Hemostatic Effect of Blood Transfusions.—Determination of the coagulation and bleeding time does not yield a satisfactory explanation of the mechanism of hemostasis; but estimation of the thrombin and fibrinogen shows why blood transfusion has a tendency to arrest hemorrhage. This action is observed only if the transfused blood contains thrombin, and if the recipient's blood is deficient in thrombin. The amount of fibrinogen present does not seem to play any appreciable rôle in human pathology. Wildegans reports ten cases in seven of which transfusion had an immediate hemostatic effect; in two cases the effect was only of short duration, and in one case (bleeding from a larger branch of the hepatic vein) no success was obtained.

Hernias in the Semilunar Line.—Koljubakin reports eight cases of these hernias. He found that the protrusions usually occur where the blood vessels pierce the aponeurosis of the transverse abdominal muscle. In the same locations, subperitoneal lipomas are not infrequently found, which may play an important rôle in the pathogenesis of these hernias.

Calcium in Blood and Pus.—Schulze and Scheller found that the blood has regularly a high calcium content in all suppurating diseases, not merely in those cases in which bones are affected. The same is true for the pus. The authors believe that this is one manifestation of the reaction of the organism against the inflammatory process, and that the frequently observed atrophy of the bone in such conditions is caused by a decalcification in order to put the calcium at the wider disposal of the body. The process of final calcification in certain scar formations, consequently, is not a secondary process but one which starts with the very beginning of the inflammation.

Blood Proteins After Operations.—Hueck observed as a general rule that in the postoperative period the blood fibrinogen and the rate of erythrocyte sedimentation are increased, but not necessarily proportionately. The total proteins and the ratio of albumin to globulin are decreased. The surface tension of the serum is not uniformly changed.

Deutsche medizinische Wochenschrift, Leipzig

51: 1347-1386 (Aug. 14) 1925

Endocrine Disturbances in Children Beumer—p. 1347.
Urology and Endocrine Disturbances T. Cohn—p. 1349.
The Bone Marrow as an Organ Arneth—p. 1350.
*Thrombopenic Purpura E Leschke—p 1352.
Werlhof's Disease. W. Schultz—p. 1355
"Of Things Biologic." Schlayer—p 1358
Dysentery in Infants S. Rosenbaum—p. 1358.
*Microphotography on the Living Brain. W. Jacobi and G. Magnus—p 1362
Iron Therapy. Stephan—p. 1365
Conservative Treatment of Furuncles. W. K. Fränkel—p. 1366.
*Syphilitic Neuritis. G. D. Koehler.—p. 1366.
Spina Bifida O. Holzapfel—p 1368
*Diphtheria of Accessory Nasal Sinuses. C. Sonnenschein.—p. 1369.
A Modification of the Inhalation Apparatus. Eppenheim.—p. 1370.
Conductibility of the Heart. E v. Skramlik—p. 1371. Conc'n, p 1408
Demography of Esthonia. E. Roesle—p 1372

Thrombopenic Purpura.—Leschke introduces various clinical and experimental evidence for the theory that the decrease of thrombocytes cannot explain satisfactorily the pathogenesis of this disease, but that a simultaneous pathologic condition of the capillary endothelium is a coordinated factor. The bleeding time does not always parallel the thrombopenia.

Photomicrography on the Living Brain.—Jacoby and Magnus describe a method by which it is possible to make microscopic studies and to take photomicrograms on the living brain. This method has been applied especially to the study of blood and lymph circulation.

Syphilitic Polyneuritis.—Koehler describes in detail two cases of this rare affection One of the cases was observed during the late secondary stage, the other in the tertiary stage.

Diphtheria of the Accessory Nasal Sinuses.—Sonnenschein found that diphtheria bacilli not infrequently cause purulent inflammations of the sinuses A complete cure may be obtained by antitoxin and vaccine treatment, and surgical interference is not necessary

Deutsche Zeitschrift für Chirurgie, Leipzig

192: 1 347 (July) 1925 Dedicated to W Muller

Tumors and Cysts of the Mammary Gland W Fischer—p 1.
Gastric Disturbances and Joint Disease in Toxic Goiter H Curschmann—p 13
Sympathectomy in Toxic Goiter F Partsch—p 28
Defect in the Tibia Treated with Implant from the Fibula W Anschutz —p. 52
Fate of Loose Bodies in Joints J C Lehmann—p 88
Thirty-Three Laminectomies C H Lasch—p 109
Treatment of Congenital Luxation of the Hip Joint Plagemann—p 128.
Plastic Operations on Muscles P. F Scheel—p 136
Hemorrhages of the Urinary Tract H Kummell—p 143
Surgery of the Bile Ducts G Hosemann—p 167
*Large Resections for Peptic Ulcers M Friedemann—p 191
Perforated Peptic Ulcers E. Schwarz—p 239
Surgical Treatment of Gastroptosis and Gastritis Elter—p 266
Invagination in Childhood A Becker—p 275
Vicious Circle; Hard Gastric Ulcer Eggers—p 281
The Treatment of Bile Fistulas Braeunig—p 283
Simplified Operations for Hernias E Moser—p 298
Some Unusual Cases of Echinococcus Infection O Langemak—p 307
*Blood Platelets in Surgical Disease H. Hueck—p 322.
The Blood Indican in Renal Insufficiency E Eick—p 330
Katzenstein's Functional Test for the Heart F Emmerich—p 337
A Simple Help in Asphyxia During Anesthesia Becker—p 345

Treatment of Peptic Ulcers.—Friedemann advocates in severe cases of peptic ulcers a radical operation, namely the removal of that part of the stomach or duodenum which contains the ulcer, including the pylorus and antrum, and to close the stomach by the Billroth I or II method. He found that such radical resections influence the chemistry of the stomach very favorably, and give good and permanent results. In 536 operations he had a mortality of 5 5 per cent. as compared with 14.4 per cent. in nonradical operations; 94.2 per cent. of the patients were free from symptoms after three years, as compared to 68.4 per cent. of the gastroenterostomy patients.

The Blood Platelets in Surgical Maladies.—Hueck concludes from counts of the platelets in 100 cases that this method does not play a significant rôle in surgical diagnosis. In the first five days after operation a decrease is usually found; then a rise is noticed beyond the normal by the eighth to the eleventh day, and after this a slow return to normal values.

192: 349 419 (Aug) 1925

*The Value of Intraspinal Anesthesia H. Grumach.—p. 349.
Anesthesia by Rectum I von Török—p. 366
Neurofibromatosis and Sarcoma. H Feriz.—p 372.
*Xanthomatous Giant Cell Tumors O Wustmann—p. 381.
Free Fat Transplantation into the Skull W. Stemmler—p. 401.
*Bone Formation in Dura Endotheliomas. A Weiser.—p. 405

The Value of Intraspinal Anesthesia.—In five hundred cases of spinal anesthesia only 1 per cent of failures was observed, and not a single serious ill effect. Grumach emphasizes the importance of proper technic and indications.

Xanthomatous Giant Cell Tumors.—Wustmann believes that these pathologic products are not true tumors, and certainly not true sarcomas. They are formed to accumulate the excess of cholesterol in these patients. Xanthomatous new growths are strictly dependent on the cholesterol diathesis. They practically never metastasize, and their growth is not infiltrative and destructive.

Bone Formation in Endotheliomas of the Dura.—It is well known that in a considerable percentage of endotheliomas, hyperostoses of the skull are found opposite the tumor. Weiser reports two cases where he found true bone formation on the cerebral surface of endotheliomas. He believes that this occurrence has never been described in the literature before.

Klinische Wochenschrift, Berlin

4: 1625-1672 (Aug. 20) 1925

Vegetative Nerve System and Infections. F. Glaser.—p. 1625.
*Meningeal Permeability in Schizophrenia. A. Hauptmann.—p. 1629.
Serodiagnosis of Syphilis. H. Sachs.—p. 1630.
Three Cases of Duodenal Stenosis. G. Kelling.—p. 1633.
*Experimental Achylia. K. Glaessner.—p. 1635.
Estimation of Sodium Thiosulphate in the Urine. Holbøll.—p. 1636.
On Breathing Sounds. Alfons Winkler.—p. 1640.
Pharmacologic Influences on the Blood Vessels of the Skin. L. Török and E. Rajka.—p. 1642.
Side Effects in Radiothorium. K. Lessheim.—p. 1645.
Why Does the Tongue Not Feel the Arterial Pulse? T. Hausmann.—p. 1645.
The Arndt-Schulz Rule. Mayer.—p. 1649. Comment. Handovsky.—p. 1650.
Studies on Cholesterol. R. Stern.—p. 1650.
Female Sexual Lipoid in Birds' Eggs and Fish Ovaries. Fellner.—p. 1651.
A Survey on Bronchial Asthma. A. Jaeger.—p. 1652.

Decreased Meningeal Permeability in Schizophrenia.—Hauptmann examined the meningeal permeability in different psychopathic patients, using as test object bromin. Out of twenty-four patients with schizophrenia, seventeen showed a considerable decrease of permeability; in six the values were within the normal range, and one had an increased value. The author believes that this decreased permeability, which he never found in patients with manic-depressive insanity, indicates a disturbance in the nourishment supply of the central nervous system.

Induced Decrease of Gastric Secretion.—Glaessner found that fever, artificially induced by injections of nuclein and similar substances, does not noticeably affect the gastric secretion. Certain vaccines, however, especially typhoid vaccine and tuberculin, decrease the amount of the gastric secretion, its hydrochloric acid and pepsin considerably, and over a period of several weeks.

Medizinische Klinik, Berlin

21: 1219-1254 (Aug. 14) 1925

A Survey on Leukemia. Wilhelm.—p. 1219.
Intracutaneous Reactions with Tuberculin and Nonspecific Proteins. F. Schmid and E. Weidinger.—p. 1223.
Insulin in Diabetes. H. von Gündell.—p. 1226.
A Case of Agranulocytosis. W. David.—p. 1229.
Burns. P. K. Schreiner.—p. 1231. Conc'n.
Linser's Treatment for Syphilis. L. Benedek and E. v. Thurzó.—p. 1234.
The Frequency of Bronchial Cancer. H. Holzer.—p. 1235.
*Experiments on Glycolysis. A. Loeser.—p. 1237.
*Group-Specific Hemo-Opsonins. F. Schiff.—p. 1238.
Post Partum Care. F. Eberhart.—p. 1240. Cont'd.
Recent Literature on Ophthalmology. Adam.—p. 1241.
Recent Urologic Literature. R. Paschkis.—p. 1242.

Glycolysis of Vaginal Tissue.—Loeser examined on explanted vaginal mucosa the glycolytic action of this tissue, using the method that Warburg evolved in his well known cancer studies. He found that living vaginal mucosa splits glucose into lactic acid, and that this process is the more active the healthier and constitutionally stronger the individual from which the excision was made.

Hemo-Opsonins.—Serum substances which stimulate phagocytosis of the erythrocytes of the same species were first demonstrated by Hektoen. Schiff studied these "isohemo-opsonins" in their relation to the iso-agglutinins, and found that they are divided into the same four blood groups. Their occurrence is not far as frequent as that of the agglutinins, but whenever they are present in a serum they always act exclusively on the same groups of red cells as do the agglutinins of this serum.

Monatsschrift für Geb. und Gynäkologie, Berlin

70: 121-242 (Aug.), 1925

The Value of Research in Constitutional Problems. F. Kirstein.—p. 121.
The Shifting of Edemas in Pregnancy. R. Bund.—p. 132.
*The Visual Field in Pregnant Women. E. L. Metzger et al.—p. 140.
Uterine Retroflexion and Childbirth. H. Katz.—p. 147.
Pregnancy in an Accessory Uterine Horn. L. A. Kriwsky.—p. 159.
Childbirth with Placenta Praevia without Hemorrhage. B. Liegner.—p. 169.
*Philipp's Virulence Test in Puerperium. P. Thadewald.—p. 174.
Sedimentation and Agglutination Tests. Mandelstamm.—p. 180.
Mortality in the Puerperium. H. Wüsthoff.—p. 189.
Sacral Teratomas. A. Hedfeld.—p. 194.
Delivery of a Thoracopagus. R. Lamy.—p. 199.
A Congenital Scalp Defect. K. Burger.—p. 201.
Carcinoma and Tuberculosis of the Uterus. G. Hirsch.—p. 204.

The Field of Vision in Pregnant Women.—Metzger, Simon and Weinberg examined the visual field in fifty-six pregnant women and found in no case a narrowing which could be referred to any anatomic lesion. But they detected quite regularly functional deviations from the normal, such as are frequently found in neurasthenic or hysteric persons.

Virulence Test in Puerperal Sepsis.—Thadewald reports very encouraging results with Philipp's virulence test in puerperal sepsis.

Monatsschrift für Kinderheilkunde, Leipzig

30: 385-496 (Aug.) 1925

An Epidemic of Chickenpox. J. Heuberger.—p. 385.
*Clinical Studies of Vaccination. W. Kuhle.—p. 390.
Iodin in Substernal Goiters. G. Petényi.—p. 419.
*Avitaminosis in Breast-Fed Infants. G. Petényi.—p. 422.
Salaam Convulsions. H. Knauer.—p. 428.
The Facialis Phenomenon in Children. W. Falk.—p. 434.
*The Bone Marrow in Infants. Kramár and Hensch.—p. 440.
The Technic of the Cathodal Closing Reaction. Freise and Schimmelpfeng.—p. 450.
Situs Inversus in a Female Infant Cadaver. G. Borchers.—p. 460.
*Twins with Congenital Syphilis. O. Herz.—p. 467.

Subcutaneous Vaccination.—The subcutaneous injection of a dilution of 1:200 of vaccine produces the same immunity as cutaneous vaccination; the incubation period is the same in both methods, and it is a few days longer in intracutaneous vaccination. Kuhle advocates the subcutaneous technic in cases where scar formation must be avoided, and when vaccination is imperative in patients with skin diseases.

Avitaminosis in Breast-Fed Children.—Petényi believes that breast-fed children may develop avitaminotic conditions, such as retardation of development in general and mild forms of anemia. This is due to the deficiency of the vitamin D in the milk. The addition of a small amount of vegetable to the food is very effective.

The Cytology of the Bone Marrow in Infants.—Smears from the bone marrow show on an average 61 per cent. of myeloid cells and 25 per cent. lymphocytes; the former group consists of promyelocytes, myelocytes and leukocytes, predominantly young types. Less than 1 per cent. basophil leukocytes, and 1-3 per cent. eosinophil leukocytes are found. There are about 5-10 nucleated red cells to each hundred white cells; but in syphilis and rickets their number is much increased (to 47 per cent. and 20 per cent., respectively). In infants with exudative diathesis one finds frequently a considerable eosinophilia (8-9 per cent.) even if the blood eosinophils are not increased in number. Rickets and whooping cough induce lymphocytosis in the bone marrow. Kramár and Hensch believe that diagnostic puncture of the bone marrow does not involve any danger, if done properly.

Congenital Syphilis in Nonidentical Twins.—Herz reports the history of a girl 3 weeks of age with the typical symptoms of congenital syphilis and a four plus Wassermann reaction. She died seven days after admission to the hospital. Her twin brother died more than three months later of bronchopneumonia and empyema. He never showed any symptoms of syphilis, his Wassermann was always negative; the necropsy and the histologic examinations did not reveal any signs of syphilis.

Wiener klinische Wochenschrift, Vienna

38: 903-926 (Aug. 13) 1925

The Symptomatology of Tabes. H. Hoff and P. Schilder.—p 903.
*Pancreatic Tissue in an Intestinal Diverticulum. W. Steiger.—p 909.
Treatment of Gonorrhea. K. Skutezky.—p 910
*Cautery Treatment in Conjunctivitis A. Maria Rosenstein.—p. 912.
Appetite. R. E. Mark and R. J. Wagner.—p 913.
A Functional Liver Test R. Bauer.—p 913
The Dosage of Sexual Hormones O Kauders —p 913. Conc'n
A Viennese Medical Society in the Beginning of the Nineteenth Century. I. Fischer —p. 915. Conc'n, p. 940.

An Accessory Pancreas in the Ileum.—Steiger reports the case of a man, 20 years of age, in whom an accessory pancreas in a diverticulum of the lower ileum caused a subacute invagination of the intestine.

Galvanocautery in the Treatment of Conjunctivitis.—Rosenstein recommends this treatment for all the various forms of chronic conjunctivitis. She reports very satisfactory results in more than 550 patients whom she has treated during a period of five years.

Zeitschrift für Tuberkulose, Leipzig

42: 529 626 (July) 1925

*The Outcome of Treatment for Tuberculosis. Liebermeister et al —p 531.

Estimation of the Outcome of the Standard Course of Sanatorium Treatment for Tuberculosis.—Liebermeister discusses this subject from the medical standpoint; Legat from the standpoint of the sickness insurance societies, and Wolz from the standpoint of general welfare work and sociology. These were addresses delivered at the recent annual meeting of the German Zentralkomitee zur Bekampfung der Tuberkulose. The transactions are given in full, but the others were mostly of local administrative interest.

43: 89-168 (Aug) 1925

Epidemiology of Childhood Tuberculosis F. Redeker.—p 89.
*Antibodies After Tuberculin Treatment. T. Gruschka and E Guth.—p 103
Vertebral Ankylosis with Pulmonary Tuberculosis Siegfried.—p 109.
Nonacid Fast Tubercle Bacilli IV R. Arima et al —p 112
Blood Sugar in Pulmonary Tuberculosis W Landau and O Glogauer. —p 121.
The Contagious Tuberculous Patient. Kayser Petersen —p. 128.
*Pulmonary Tuberculosis in Jews. I. Werner —p 130.

Antibodies After Tuberculin Administration. — Gruschka and Guth found that the injection of tuberculin in small amounts is followed by the production of complement fixing antibodies in active tuberculous patients. Nontuberculous persons do not develop these antibodies even after considerable amounts of old tuberculin.

Pulmonary Tuberculosis in the Jew.—Werner analyzed the course of the disease in 225 patients. He found that the disease tended to severer forms in the postwar period (in Berlin) than before the war; but still he believes that, compared with other statistics, pulmonary tuberculosis takes a milder course in the Jewish patient than in the Gentile.

Zentralblatt für Chirurgie, Leipzig

52: 1809 1872 (Aug. 15) 1925

Case of Retrograde Incarceration of the Testis H Kunz —p 1810.
*Periarterial Sympathectomy G Monaschkin –p 1812.
A Case of Palpable Air Embolism J. Vigyazo —p 1816.
Plaster as Filling Material. S. Kofmann —p 1817.

52: 1873 1936 (Aug. 22) 1925

Dilating the Anus M Kirschner.—p. 1874
Dietetics After Gastro Enterostomy. A Jarotzky.—p 1876.
Osteofibroma of the Femur Neck Sonntag —p 1880
Stones in the Renal Pelvis N. Beresnegowsky —p 1882
Pharyngeal Tube in General Anesthesia H. Schmidt —p 1884.
Treatment of Intestinal Fistula. Ahrens —p. 1886.
Postoperative Acidosis M. Herz —p 1889.

Periarterial Sympathectomy.—Monaschkin made histologic studies on three patients who had been operated on on account of spontaneous gangrene. The fact that the vasa vasorum are removed or severed by the operation may entail necrosis of the arterial wall. The operation may lead to a sclerotic scar which constricts the artery. It is therefore important to surround the decorticated artery with fat tissue

Zentralblatt für Gynäkologie, Leipzig

49: 1841-1888 (Aug. 15) 1925

Anatomic Proportions in the New-Born. A. Seitz.—p 1842.
*Roentgentherapy in Gynecology. W. Framm and A. Wierig —p. 1847.
Implantation of Tubes in Uterus K. Volkmann —p 1851.
Rupture of Symphysis in Spontaneous Delivery. S Polgár —p. 1855.
Antefixation of Retroflexed Uterus W. Sigwart —p 1859.
Transverse Position in Frontal Presentation. P. v. Kubinyi —p 1860.
"Induced Premature Delivery with Narrow Pelvis." P. Kühnel —p 1865.

Roentgen-Ray Treatment of Inflammatory Diseases of the Pelvic Organs.—Framm and Wierig treated thirty-five women with acute and chronic inflammatory processes in the adnexa or the parametrium with roentgen rays, and obtained seven complete cures, twenty-two improvements; five women were unimproved, and one patient became worse under the treatment. The dosage used was always far below the sterilizing amount of rays.

49: 1889 1936 (Aug. 22) 1925

Peristalsis of Fallopian Tubes R Dyroff.—p 1890
*Treatment of Incipient Mastitis. W. Schmidt —p. 1893.
An Unusual Case of Criminal Abortion. G. Raestrup —p. 1896.
Leukorrhea and Constitution A. Loeser —p 1898
Legalization of Abortion. M. Hirsch —p 1901
Eclampsia without Convulsions S. Liebmann.—p. 1906
Operative Interposition of the Uterus A. Werner.—p 1910

Treatment of Incipient Mastitis. — Schmidt withdraws in such cases 20-50 c c. of blood from the patient, and injects it immediately at the site of the inflammation. He treated a few patients by this method, and believes that it is possible in this way to prevent abscess formation.

Zentralblatt für innere Medizin, Leipzig

46: 785 816 (Aug 22) 1925

Diabetic Coma in Adolescent; Rapid Recovery. E. Lang and P. Mahler. —p 786

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 569 696 (Aug 1) 1925

Annals of Human Credulity: Abrams' Electronic Reaction. G van Rijnberk —p 570.
*Immunization Against Cancer N Waterman —p. 577
*Thrombosis in Mesenteric Veins P R Michaël —p. 584
Pneumothorax for Unilateral Tuberculosis. Marsman and Backer —p 589
Melanin and Hematophorphyrin in Urine H H van der Zoo de Jong. —p 598
Gye and Barnard's Research on Cancer H T Deelman —p 600.
Dysentery at Nijmegen in 1736. E D. Baumann —p 605.
*Goiter in Classic Art E C van Leersum —p 620
Health Board of the League of Nations N M J. Jitta —p 657.

Immunization Against Cancer. — Waterman's further research has confirmed his assertions last year in regard to a heat-stable substance in the extracts of benign tumor filtrates which activates glycolysis without having a direct ferment action itself. It proved possible by preliminary treatment with extracts of benign tumors to make mice refractory to inoculation of malignant tumor substance. It is not a true immunizing process, but merely a modification of the hormonal system, as is evident in the changes in the sugar content of the blood and in glycolysis. A similar inhibiting influence is apparent also with injection of insulin. He urges that this nonspecific inoculation should be applied as an adjuvant in treatment of human cancers, especially in prophylaxis of recurrence.

Thrombosis of Mesenteric Veins. — Michael operated promptly, removing 3 meters of the small intestine with the edematous mesentery and thrombosed vessels The sudden intense pain around the navel, with paroxysmal recurrence, had been preceded by a month of occasional vomiting, and anemia, with hemoglobin 38 per cent. A month after the operation the spleen enlarged and thrombosis became evident in the femoral vein, but this all subsided harmlessly, and the young woman left the hospital in good condition. A miscarriage four months before may have been responsible for the whole process.

Enlargement of the Thyroid in Art.—Ten reproductions are given of paintings of Madonnas by the old Dutch, German or Italian masters, and van Leersum gives a list of others in all of which the neck shows more or less thyroid enlargement. He calls attention further to the prominent Adam's

He remarks that some of them would not be out of place in a textbook on pathology. He adds that the extremely high forehead or long fingers in certain works of art may be regarded as simply a question of the artist's taste, but the number of paintings from the fifteenth and sixteenth centuries showing enlargement of the thyroid testifies that this was common in that age. This demonstrates that the incidence of goiter cannot be explained by any factor which has come into play only in the last century or two.

2: 697-796 (Aug. 8) 1925

Suicide or Murder? J. P. L. Hulst.—p. 698.
*Examination of the Blood. W. Schüffner and Ruys.—p. 710.
*The Concentration Trend in Evolution. W. A. Mijsberg.—p. 719.

Minor Points in Examination of the Blood.—Schüffner and Ruys point out that the leukocytes retain their shape if the specimen of blood is allowed to dry slowly, of itself, without waving in the air. They also warn that there is a peripheral monocytosis which may prove misleading. The count in blood from the ear varies widely according as the ear is pale and cool or has been well reddened by friction.

Concentration as a Phenomenon of Evolution.—Mijsberg carries still farther Bronn's conception of the seven evolutionary processes, culmination, differentiation, concentration, centralization, interning of the vital organs, and increase in the size of the body, with reduction in the number of similar organs. He illustrates his views in particular with the comparative anatomy of the vascular system, the evolution from the multiple and scattered to the simple and concentrated.

Acta Medica Scandinavica, Stockholm

62: 197-377 (Aug. 13) 1925

A Danish Disease Resembling Tropical Sprue. T. E. Hess Thaysen.—p. 197.
Blood Sugar Curves in Diabetics After Glucose and Insulin Injections. K. M. Hansen and H. Rønlund.—p. 213.
Ignorance of the Existence of Disease (*Anosognosia*) in Cerebral Hemiplegia. A. Barkman.—p. 235.
*Essential Thrombopenia. G. Höglund.—p. 255.
Value of Blood Sugar Determinations in Glycosuria. H. Malmros.—p. 294.
*Fistulas into Esophagus. Westergren and Ragnell.—p. 319.
Insulin in an Oil Emulsion. E. Hedvall.—p. 334.
Ossification of Auricles of Both Ears. G. Ekehorn.—p. 351.
Daily Blood Sugar Variations in Diabetics. A. Flaum.—p. 372.

Essential Thrombopenia.—Höglund recapitulates all the various theories on the pathogenesis of this disease, and gives a complete survey of the literature on the subject. He reports three cases of his own *in extenso*, and formulates the indications for the treatment as follows: In mild cases, conservative treatment and the administration of hemostyptics should be tried first. If no improvement is obtained, roentgen-ray treatment of the spleen should be given. In severe cases, or when any other treatment proves unsuccessful, removal of the spleen is indicated, and this achieves usually a prompt arrest of the hemorrhagic diathesis.

Two Cases of Broncho-Esophageal Fistula.—Westergren and Ragnell found in one case a fistula connecting the esophagus with the two main bronchi, which was formed by the breaking down of a tuberculous mediastinal lymph gland. In the other case, an esophageal diverticulum had perforated into the right lower lobe, where extensive gangrenous processes were found.

Norsk Magazin for Lægevidenskaben, Oslo

86: 757-916 (Aug.) 1925

*Permeability of the Meninges. O. Jervell.—p. 757.
*Coxa Plana. S. Widerøe.—p. 811.
*Treatment of Pituitary Tumor. Zeiner-Henriksen.—p. 818.
Paresthetic Meralgia. Zeiner-Henriksen.—p. 820.
*Rupture of Uterus After Cesarean Section. G. Schaanning.—p. 824.
Statistical Study of Appendicitis. N. Paus.—p. 861.
Treatment of Gastric Ulcer. N. Paus.—p. 872.
Recent Literature on Iodin Treatment of Primary Exophthalmic Goiter. J. Nicolaysen.—p. 880.

Passage of a Stain into the Cerebrospinal Fluid.—Jervell tabulates the details of seventy-six cases in which the lumbar puncture fluid was examined after ingestion of uranin. If the fluid does not show the stain three hours after 2 gm. of uranin has been taken by the mouth or injected intramuscularly in a 20 per cent. solution, then meningitis can be excluded. A pronounced change of tint indicates extensive meningitis but not its form. Uranin does not pass into the saliva, tears or other secretions but stains the tissues readily and passes into exudates. This suggests that the spinal fluid in meningitis is more of the nature of an exudate than a secretion. No trace of the stain in the spinal fluid was left by the eighteenth hour. He adds that it might be interesting to determine whether intravenous injection of solutions of various other substances in different concentrations might modify the permeability of the meninges for the stain, and thus for drugs.

Coxa Plana.—Widerøe gives a three-year series of roentgenograms of a case of the Calvé-Legg-Perthes hip joint affection. They show clearly a phase of destruction for about a year and a half, and then two years of reconstruction.

Pituitary Tumor Improved by Pituitary Treatment.—Amenorrhea in 1918 and progressive impairment of vision in 1921 were soon followed by an epileptiform attack once a month, with loss of consciousness. The woman had three healthy children. In 1923 the sella turcica and the urine seemed to be still normal. Treatment was then begun with potassium iodid and thyroid and pituitary extracts. Menstruation promptly returned and there were no further epileptiform seizures. The single seizure each month seemed to be a kind of vicarious menstrual manifestation, and the return of the menses twenty-four hours after the first dose of pituitary extract seems to indicate some toxic connection between the pituitary and the menstrual process. During the two years since 1923 the woman has had a few very mild returns of the seizures and two severe ones. Radiotherapy for the assumed pituitary tumor was contemplated but not attempted.

Rupture After Cesarean Section.—Schaanning compares the literature with his own experience in 88 cases of cesarean section since 1908. There was no instance of rupture or other complication of childbirth later in the group of 28 vaginal cesarean sections or in the 18 cervical, but there was one case of rupture in the 42 classic corpus cases. Only 39 of the total 88 have been known to pass through a pregnancy since, but some have borne up to three children.

Ugeskrift for Læger, Copenhagen

87: 685-708 (Aug. 6) 1925

*The Reaction to Sanocrysin. J. Frandsen.—p. 685.
*Test for Gold in Organic Substances. S. Lomholt.—p. 686.
*Experiences with Sanocrysin. H. Poindecker.—p. 687.
*Idem. G. E. Permin et al.—p. 695.

The Long Febrile Reaction to Sanocrysin Treatment.—Frandsen theorizes to explain the rise in temperature which persists for a week or two in 75 per cent. of the tuberculous under sanocrysin treatment at first.

Determination of Small Amounts of Gold in Organic Substances.—Lomholt describes an electrolytic method worked out for study of the distribution of sanocrysin in the tissues.

Experiences with Sanocrysin.—Poindecker reports that the tubercle bacilli did not disappear completely from the sputum in any of the fifteen tuberculous patients treated at Vienna, although improvement was marked on the whole. Permin relates that of his sixty-seven patients treated more or less systematically with sanocrysin, fourteen showed such improvement, disappearance of bacilli and roentgen shadows, that he thinks the treatment must be credited with it, as these favorable changes occurred notwithstanding the characteristic loss in weight, general depression and bowel disturbances which conflict with all the generally accepted principles of sanatorium treatment.

87: 725-750 (Aug. 20) 1925

*Sanccrysin Treatment of Tuberculosis. H. Hansborg.—p. 725.
Volkmann's Ischemic Paralysis. E. Jensen.—p. 729. Cont'd.
Retropharyngeal Phlegmons. G. V. T. Borries.—p. 734.
Glucose in Spinal Fluid. C. J. Munch-Petersen.—p. 738.
Nocturnal Enuresis. C. Gram.—p. 739.

Elimination of Gold During Sanocrysin Treatment.—Hansborg relates that iodometric titration has demonstrated that the gold loses at once its easily diffusible character in sanocrysin treatment, and behaves like other heavy metals. It is still detectable in urine and stools over eight months later.

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PITUITARY DISORDER

A DIGEST OF ONE HUNDRED CASES, WITH REMARKS ON THE SURGICAL TREATMENT *

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AND
FRANCIS C. GRANT, M.D.
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The first operation in the neurosurgical clinic of the University Hospital for the relief of a symptom or effect of primary pituitary disease was performed in 1912, and since that time 175 patients have been added to our pituitary register. While surgery is recognized as a factor in the care of the patient with pituitary disorder, yet there is a certain amount of hesitation or uncertainty on the part of physicians as to what advice to give such patients. It is only proper that a fair statement should be made as to what may be accomplished by such methods of treatment as are available; to wit, glandular therapy, radiotherapy and operation.

TREATMENT

I can pass over the merits of glandular therapy, as my experience has been entirely barren of results and this applies only to patients who have already developed pressure symptoms. Obviously, such patients as may have responded to glandular feeding would not have been referred to the neurosurgical clinic. I have no doubt that an occasional case, depending on the nature of the lesion, responds to the administration of pituitary extract with or without thyroid extract; but, judging from what records are available in literature, the success of glandular therapy in relieving the pressure phenomena of pituitary lesions must be the exception rather than the rule. However, even with this trivial chance of betterment, the patient should be given the benefit of the doubt; and, assuming that vision is not threatened, a course of treatment with glandular extracts is quite within the bounds of propriety. Be it said at this time, and this applies to all methods of treatment, that we have in the intensity of headache and in the measurements of the pituitary fossa, but more particularly in the examination of the eyegrounds and in the perimetric studies, a trio of indexes that give indisputable evidence of the progress of the case. With the roentgenologist and the ophthalmologist for consulting service, one can rest assured that information will be available as to whether the lesion is progressing, stationary, or in process of retrogression.

Because the pathologic condition in pituitary lesions is fairly constant, the majority being adenomas, and because the location of the lesion can be determined with great precision, the roentgenologist is supplied with information of great value in determining dosage and other technical details. Despite these apparent advantages, I am inclined to believe that roentgen-ray therapy has been employed to a limited degree in this country and that the percentage of positive results is small. In my own series there were only three cases in which unquestionably the lesions were favorably affected by irradiation, and whether in these the results will be permanent or only transitory is still an open question. However, as with organotherapy so with irradiation: in incipient cases these nonsurgical measures with propriety may first be given a trial. Naturally if the lesion is, as in many cases, a cyst, or if, as in a still larger percentage of cases, the adenoma has undergone cystic degeneration, the effect of irradiation would be nil.

Finally, there remains, as the court of last resort, if you will, surgical therapy. Deferring for the time being all matters relating to the operative technic, three leading questions suggest themselves. 1. When does the case of pituitary disorder become a surgical problem? 2. What may be accomplished by operative procedures? 3. What are the immediate and end results?

1. Since, as a rule, we are not confronted with symptoms that threaten life, an operation in pituitary lesions is one of choice, not one of necessity. It is optional with the patient whether, in the face of inevitable blindness, forecast by the advancing optic atrophy, when headaches are unbearable and when the disability and disfigurement of an acromegaly become encumbrances, he shall submit to an operation for their relief. It is only proper at this time to inject a warning as to the dangers of procrastination. The more advanced the optic atrophy, the more advanced the acromegaly and the longer the duration of the lesion and its effect on other endocrine glands, the less surgical intervention can accomplish. Too frequently the surgeon is confronted with end-results of the disease, and with terminal states when relief is out of the question.

2. At one time we were wont to think that the effect of operation was only that of relieving pressure phenomena, the visual disturbances and headache; but it has become evident that the clinical evidence of functional disturbance, whether it be in the form of acromegaly or the Frölich syndrome, may be favorably influenced. Cases might be cited in which the patient was relieved of somnolence, in which fatigability had given way to normal vigor, in which there was diminution in the size of hands and feet, and loss of weight in those with great accession of fat. These possibilities at once suggest a much larger scope for surgical treatment than was at one time reckoned with; but in practice we find the patient unwilling or unprepared, perhaps because uninformed, to consider an operation until vision is seriously impaired, if not altogether

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* Read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

threatened. This has been our experience with the exception of a small series of cases, five, in which severe headache was the predominant indication.

Physicians still look askance at surgery as a means of relief, when confronted with a patient with pituitary disorder, and this, perhaps, is what one might expect when the issues at stake have not been clearly set forth. Consequently, the question of operation has not been faced until the situation has become desperate and the surgeon has been confronted for the most part with the terminal effects of the disease, with advanced optic atrophy and with late stages of the various functional disorders, dwarfs or full blown acromegalic patients; and in evaluating the results of the surgeon's attempt to restore the patient to health, these facts must be given due consideration.

3. The facts which should be clearly set forth are those which have to do with the immediate results, or operative mortality and the end-results. The operative mortality depends on whether the lesion is approached by the nasal or by the intracranial route. In the last twenty-nine operations, performed since October, 1919, there has been but one fatality, a mortality of 3.4 per cent. Prior to that time, when the technic of the operation had not been perfected as it has today, the mortality was higher. Altogether there have been six deaths in our entire transsphenoidal series. As our experience grows, and further refinements in the technic suggest themselves, this mortality of 3.4 per cent. will, we believe, be still further reduced. (It is not so very long ago that the mortality of the major operation for trigeminal neuralgia, now less than 0.5 per cent., was 5 per cent. and over.)

In the neurosurgical clinic of the University Hospital it is now our practice to perform the transnasal in preference to the transcranial operation in every case in which there is no reasonable doubt that the lesion is in great part within the confines of the sella turcica. In this choice of operative approach, our selection has been influenced in part, but in large measure, by the fact that the mortality of the transnasal operation is decidedly lower than that of the transfrontal operation; and until the time comes when by the transfrontal approach we are able, without a prohibitive mortality, to deal radically with the pituitary lesion, and by that we imply a complete evacuation of the sella contents, we shall continue our present practice with such limitations as it involves.

The mortality of the transfrontal operation for primary pituitary lesions has been acknowledgedly high, 30 per cent. In other clinics a mortality rate of 40 per cent. and over has been recorded. The crux of the situation is this: The transfrontal approach unquestionably gives the better exposure and the only one that permits a complete extirpation of the lesion, which implies a complete evacuation of the sella contents. This is, as we know, a difficult and hazardous procedure. When we are able to accomplish this with a risk proportionate to the gravity of the situation, the tide will turn, and the transfrontal approach will be the accepted procedure. We must remember in the consideration of these technical problems that in possibly eight out of ten cases the lesion is an adenoma, fairly uniform in its physical proportions. If our practice is limited to a subcapsular enucleation of the adenomatous contents, whether by the transnasal or transfrontal approach, for the present at least preference should be given to the operation that involves the least risk.

In 1923 I[1] reviewed the effect on vision in the series operated on in the years 1919-1923, and the results at that time were expressed as follows: striking improvement in 35 per cent., moderate improvement in 35 per cent. and stationary or aggravated in 27 per cent. In other words, there was an enlargement of the field and better vision in one or both eyes in 70 per cent. In the series operated on since then, the percentage of improvement has been sustained. In only one case was there no improvement following operation. In the series of 100 cases we have records of six deaths after discharge from the hospital, two after three, six and twelve months, respectively. Three patients in the series died from meningitis, one before operation and two after discharge from the hospital. Of the total operative series, in 22 per cent. there was evidence of improvement in the glandular symptoms soon after operation.

ANALYSIS OF CLINICAL MANIFESTATIONS IN THE AUTHOR'S SERIES OF ONE HUNDRED CASES

Classification.—For convenience of study, cases with pituitary lesions may be divided into four groups:

1. Pituitary dysfunction, under this term including cases with manifest symptoms of pituitary dysfunction, but without enlargement of the pituitary fossa and without pressure phenomena. For the most part patients in this group will be found among adolescents and, not presenting any surgical indications, should be placed under the care of the endocrinologist. 2. Suprasellar lesions, as the term implies, referring to lesions primarily extrasellar, but with striking evidence of pituitary disorder, and often calling for surgical relief. 3. Pharyngeal pouch tumors, closely, to be sure, related to the pituitary gland disorders but with a different origin and presenting a different surgical problem. 4. Primary pituitary or primary intrasellar lesions, the group representing the majority of surgical indications in the pituitary clinic. In this analysis my remarks will be confined to the last group, comprising a series of 100 cases.

Etiology.—The predominance of males over females, in the proportion of 65 to 35, is mentioned although the significance of this is not apparent, and the prevalence in the third and fourth decades is conspicuous; 53 per cent. were almost equally divided between the third and fourth decades; 31 per cent. developed in the second and third decades. There was only one patient under 10 years of age; thirteen were over 50 years of age, and only four 60 years. These ages represent the time at which the patient presented himself at the clinic for treatment. If any conclusions are to be drawn from these statistics, one is that the great majority of pituitary lesions, as we see them in the clinic, appear between puberty and middle life; that is, in the period of greatest sex activity. As we know from experimental and clinical evidence, there is a not distant relationship between the sex glands and the pituitary body; but whether this relationship has any direct bearing on the etiology of pituitary lesions is, of course, hypothetic.

Duration of Lesion.—There is apparently a wide divergence in the time that elapsed between the appearance of the first symptom and the time in which the condition demanded relief. This might be said to be only an approximate index of the development of the lesion, as measured by time, since in some instances the patient reported to the clinic at a relatively early period; but the time varies from six months to twenty-nine years.

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[1] Frazier, C. H.: Surgery of Pituitary Body, Arch. Surg. 8: 39 (Jan.) 1924.

Predisposing Causes.—The previous medical histories were analyzed with a view to determining the prevalence of any predisposing cause, and in this connection it is interesting to note that in 11 per cent. there was in the family history a record of some endocrine disturbance. The question has arisen at times as to the relationship of cranial trauma to pituitary lesions, especially basal fractures through the pituitary fossa, but in only 6 per cent. was there an injury to the head recorded in the history, and in not all of these cases was the injury of any serious moment. Certainly the percentage is not high enough to carry with it any etiologic significance. Excluding endocrine antecedence and cranial trauma, we have nothing but a medley of diseases in the previous history, the exanthems and the more common infectious diseases, no one of which was recorded in more than 8 per cent. of the series. The relationship between syphilis and pituitary disease has been a subject for discussion, but so far as being able to demonstrate conclusively that the lesion was definitely syphilitic, there is not a single one of our series that could be so catalogued. In five instances, because of positive serologic reactions, antisyphilitic remedies were incorporated in the postoperative treatment; but that these had any definite influence on the course of the disease, we have no testimony to offer.

TABLE 1.—*Ages in Series of One Hundred Patients*

Below 10 years	1
From 10 to 20 years	13
From 21 to 30 years	17
From 31 to 40 years	27
From 41 to 50 years	26
From 51 to 60 years	9
From 61 to 70 years	4
Not recorded	3

By way of parenthesis, a word should be said as to the acceptance of statistics on pituitary lesions that emanate from a neurosurgical clinic. What may apply to surgical lesions of the pituitary gland, if we may so qualify those with pressure symptoms, might not apply to all pituitary lesions without qualification.

Initial Symptoms—In our series of 100 cases, the initial symptom, according to the patient's statement, was failing vision in 71 per cent. and a later development in 16 per cent. Thus, in 87 per cent. of our patients, failing vision was probably the outstanding indication for treatment. That the initial symptom should have been failing vision in more than three fourths of our patients deserves passing comment That the lesion should be large enough, and therefore of months' if not years' duration, to cause pressure on the optic tracts or chiasm without previously having provoked any noticeable evidence of pituitary dysfunction is at least surprising.

In 27 per cent. headache was the initial symptom and a later symptom in 61 per cent ; it was described as severe in 37 per cent., as moderate in 15 per cent and as slight in 9 per cent. "Pituitary headache," as we understand the term, implies tension within the pituitary capsule, and one would rather expect a more or less constant location to which the pain is referred As a matter of fact, in our series the location was varied and was described as frontal (seventeen), frontooccipital (five), frontotemporal (seven), vertexfrontal (one), occipital (five), vertexoccipital (two), occipitotemporal (three), temporal (three) and general (seven). Thus the majority in this series were frontal, followed in order of frequency by occipital, general and bitemporal. While headache was recorded as severe in one third of the total number of cases, as a matter of fact in only five cases was it the outstanding symptom for which the patient sought relief.

Ocular Phenomena.—The ocular phenomena of pituitary disease would take us too far afield. The field defects and optic atrophy are, of course, the prevailing findings, and a brief statement as to these may be made. What may be accomplished by operation in restoring vision obviously depends on the presence and degree of atrophy, and as an evidence of the unfortunate delay in seeking operation we find optic atrophy recorded in 41 per cent. and in more than half of these there was total or almost complete blindness in one eye, with deterioration of vision in the other. The yellowish discoloration of the disk, really pathognomic of pituitary disease, was recorded in 35 per cent. of the cases. The perimetric studies we will not go into here. That bitemporal hemianopia is by no means the universal field defect is now well known. The variability of the perimetric findings is probably due to the variable position of the chiasm with relation to the pituitary body, as shown by Schaeffer, and certain bizarre fields are the effect of pressure of the vessels of the circle of Willis, or of irregular protuberances from the surface of the adenomatous mass. An exceptional effect of an adenomatous protuberance on the lateral aspect of the tumor, as illustrated by one case in our series, was an oculomotor palsy. Suffice it to say, in conclusion, that perimetric studies are of importance not only as of diagnostic value, but also as the most reliable index of the progress of the disease.

Sellar Deformation.—The diagnosis of a primary intrasellar lesion is on the whole not difficult if, as is implied by that term, it is a lesion which in its growth has caused an alteration in the size and shape of the sella turcica. The interpretation of the roentgenogram is a matter of prime importance not only as a diagnostic essential, but also in the selection of the operation as a guide to the method of approach An attempt has been made to state in figures what may be accepted as the dimensions of a normal sella turcica. Whether it be 12 mm. anteroposterior by 10 mm. vertical, a millimeter or two more or less is not a vital matter, since by the time the lesion is large enough to give pressure symptoms, the dimensions of the sella turcica have exceeded the normal limits sufficiently to be recognized as abnormal. Furthermore, in many cases the atrophy of the posterior clinoid processes and the dorsum sellae preclude the possibility of making accurate anteroposterior measurements. The deformation of the sella turcica characteristic of a primary intrasellar lesion is the

TABLE 2.—*Interval Between Onset of First Symptom and Patient's Entry to Clinic*

One year	18
One to two years	17
Two to three years	15
Three to four years	12
Four to six years	12
Six to eight years.	6
Eight to twelve years	5
More than twelve years	3
Time not stated	12
	100

increase in the vertical dimension, and the best guide as to this is the degree of encroachment of the sella on the sphenoid sinus. This observation can be readily made, and for a proper interpretation of the roentgen-ray shadow one need not depend on any measurement. Admitting an occasional exception, this method of interpreting the roentgenogram is the most dependable in distinguishing, as one must, between a primary pituitary lesion, essentially intrasellar, and a lesion superimposed, extrasellar, and a lesion not of pituitary origin. When the measurements were recorded in our series of 100 cases, in every case but one the measurements exceeded 12 mm. by 10 mm.; the highest anteroposterior diameter was 25 mm., and the highest vertical 22 mm. Between these and the so-called normal dimensions there were many variations.

CONCLUSIONS

The surgery of the pituitary body, as practiced today, has limitations, proportionate in large measure to the duration of the lesion. When surgery is recognized as an essential factor in the treatment of the pituitary lesion in the early stage, before optic atrophy is advanced and before the terminal stages of functional disorder are reached, there will be a decided improvement in the operative results and a lower mortality. The surgeon has been handicapped because he has been confronted so often with terminal effects.

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ABSTRACT OF DISCUSSION

Dr. William G. Spiller, Philadelphia: I should like to ask Dr. Frazier to make a little more definite statement as to what is the period of the growth of the tumor when he does urge operation, not merely when the patient is willing but when he recommends it. In a case in which there is very little endocrine trouble, and there are many cases of that kind, in which the visual fields are not greatly affected and the headache is not very intense, the patient hesitates often to have an operation, which he regards as serious. Therefore, I wish Dr. Frazier would tell us whether he recommends early operation in such a case as that. The transsphenoidal operation can hardly be regarded as a total extirpation of the tumor. It is a relief operation. It would be interesting to know from his experience to what extent symptoms have continued in his cases after a portion of the pituitary tumor has been removed in the transsphenoidal operation. His paper is devoted entirely to sella growths, but I think he will agree with me that often the clinical diagnosis between sella growths and suprasellar growths is extremely difficult, and that the destruction of the clinoid processes and the enlargement of the sella turcica may occur in both. I remember a case in which destruction of the clinoid processes and enlargement of the sella occurred with a tumor of the cerebellopontile angle.

Dr. Charles H. Frazier, Philadelphia: With regard to the ideal time at which an operation should be performed, I should say this: The first evidence of visual disturbance usually is a contraction of the temporal field; eventually both temporal fields will be lost; probably then a provisional diagnosis could be made and confirmed by roentgen-ray study. The patient then might receive a course of treatment in feeding by pituitary or thyroid extracts, one or both; he might receive a course of treatment by irradiation. He should report to the ophthalmologist at least once a month for perimetric studies. If despite the treatment prescribed the fields either remain stationary or become more contracted, and if there is a suggestion of beginning optic atrophy, this is the time, if the patient expects ever to be operated on, for the proposition to be submitted to him. He should be told at that time that, unless something is done to arrest the natural sequence of events, first, he will probably lose the sight of one eye, then of the other, and eventually become totally blind. Dr. Spiller's second question was as to the permanence of results. We all know that there is possibility of recurrence in these cases. Just exactly what that percentage is, I am unable to say. So far as my own experience goes, I have operated only once for recurrence; I do not mean to imply by that that there may not have been more recurrences, but I do know that but one patient has returned to us, seven years after the original operation, for a second operation because of recurrence. We have certain reasons for believing that, if after the operation the patient receives a course of roentgen-ray treatment under proper direction, there is less likelihood of recurrence than if this postoperative course of treatment is omitted. I think it would take us a little too far afield to go into a discussion of a differential diagnosis between suprasellar lesions and the primary intrasellar lesions. When we are confronted with an instance in which there is reasonable doubt as to whether it is a suprasellar or an intrasellar lesion, we almost invariably approach the lesion by the transfrontal route.

DETERMINATION OF LOCAL COMPRESSION AS AN INDICATION FOR LAMINECTOMY

IN ACUTE INJURY OF THE SPINAL CORD *

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It is generally accepted that the early clinical examination of a patient with a severe cord lesion is often inadequate to fix the extent of the injury. The most that can be said of many such cases is that there is a complete physiologic interruption of the cord. Whether the lesion is a recoverable one or permanent, and whether a partial lesion is being converted into a complete one by pressure are problems that may be solved by time, but rarely permit prompt decision. If the cord is not subjected to pressure, operation is not only futile but increases the damage to the spinal column already weakened by the injury.

In fracture dislocation of the spine, pressure on the cord may be caused by the displacement of fragments of the vertebrae or malalinement of the vertebral column at the site of displacement. Extradural or intramedullary collections of blood and edema with swelling of the cord in a normal dural canal may also result in local compression. Whatever the cause of the pressure, the result is a partial obstruction or a complete occlusion of the spinal subarachnoid space at the site of the injury. Obstruction of the spinal subarachnoid space following trauma may therefore be regarded as satis-

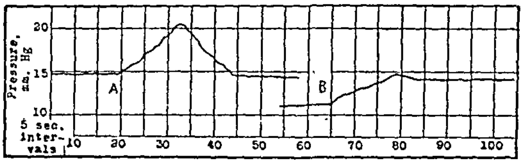

Fig. 1 (J. I. P., March 20, 1924).—Fracture dislocation of the sixth *cervical vertebra on the seventh, with comminution of the right side of* the body and lamina of the seventh. Operation showed swollen cord, with penetration of dura on right side by bone fragments. Apparently there was complete obliteration of the subarachnoid space. Marked improvement followed. Manometric tests sixteen hours after injury showed incomplete block; twenty-four hours later the block was complete, as shown by the second tracing at the right. *A*, jugular compression, March 20; *B*, jugular compression, March 21.

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* From the Department of Neurological Surgery, Medical College of Virginia.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

factory evidence of pressure on the cord. The uncertainty that usually prevails as to the local conditions about the injured segments of the cord has led to operations, which have shown the cord to be lying perfectly free in an undeformed canal, with no possibility of being benefited by laminectomy.

Roentgenograms cannot be depended on to give definite information of cord compression by small, in-driven fragments of bone. Certainly no help could be expected from roentgen-ray examination in the diagnosis of compression of a swollen cord by the dura, when there is no bony deformity.

Thompson,[1] in a careful review of the pathologic specimens in thirteen cases, concludes that recoil of the vertebrae after the displacing force has ceased to act is the general rule and that operation is rarely justified. Four of his specimens, however, showed a permanent narrowing of the bony canal, which by continuous pressure had converted the cord into a tapelike band. While it often happens that a fracture dislocation of the spine crushes the cord at the level of impact, it is also probable that partial lesions which might recover are made complete when the pressure is not relieved by prompt operation.

From the study of a series of fourteen patients, sufficient data have been obtained to justify the conclusion that the essential indication for operation in spinal cord trauma is the existence of a pressure on the cord, as determined by a block of the subarachnoid space. The adoption of a mechanical test for a mechanical condition at once clarifies much of the confusion resulting from the attempt to settle the operative indications on the basis of a complete or incomplete physiologic interruption. Either of these conditions may exist with or without the need for laminectomy, depending on whether the operation can remove something that is causing progressive cord destruction.

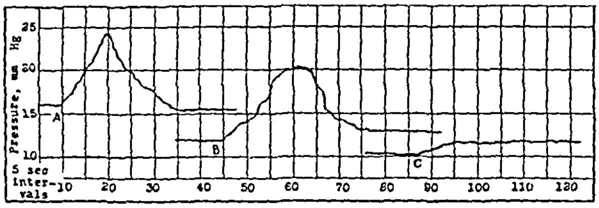

Fig 2 (C P T, June 6, 1924)—Fracture dislocation of seventh cervical, with comminution of laminae Small areas of tactile sensation retained in legs Lesion otherwise complete physiologically. Laminectomy *Death thirty hours later in hyperthermia Chart shows fluid* pressure curves of three manometric tests The first test, done on admission, showed no block The second, about fourteen hours later, showed a delayed rise with halting of the fluid column in its ascent. On jugular release, pressure does not fall promptly The block became complete twenty four hours later, as shown by tracing at right At this time, operation was done Jugular compressions. *A*, June 16, *B*, June 17, *C*, June 18

Interruption of the spinal subarachnoid space may be determined by roentgen-ray examination of the spine after the injection of lipiodol into the spinal canal, by double puncture or by lumbar puncture combined with jugular compression. Of these methods, Ayer's[2] double puncture or simple lumbar puncture with jugular compression is more satisfactory. Mixter,[3] in 1923, included the test for subarachnoid block among the methods of study which patients should receive to determine the indications for operation in cases of fracture dislocation of the spine with cord injury. In our group of cases, Ayer's double puncture was used on two patients. In twelve cases of this group, the question of pressure on the cord was decided by the Queckenstedt[4] test alone. It has been of some interest to note in two of our cases an increasing block, which became complete in from eighteen to forty-eight hours after injury (Figs 1 and 2).

Allen[5] found that cord edema experimentally produced reached a maximum in four hours and that after this period longitudinal section of the injured segments was of little benefit in preventing the harmful effects of the edema. This conclusion would seem to predicate cord destruction on a very early edema, which may be many hours ahead of the maximum cord swelling, as shown by the time of the appearance of a complete block in two of our cases. While the evidences of partial block as shown by the Queckenstedt test are of the greatest importance in the study of cord tumor, we have not considered anything short of an almost complete block as sufficient indications for operation in injuries of the cord. Repeated tests for block are often necessary, particularly if the obstruction is increasing, so that operation may be promptly done when the block becomes complete and the nutrition of the cord is threatened by pressure.

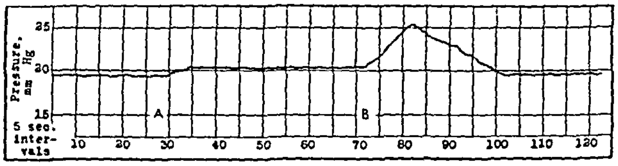

Fig 3 (G O'B, Dec 26, 1924)—Gunshot wound through disk between third and fourth dorsal vertebrae Bullet lodged in canal Complete paralysis Operation Cord destroyed Complete block Rise of fluid pressure on coughing shown *A*, jugular compression; *B*, coughing

A large number of spinal cord lesions are hopeless because of immediate destruction of the cord at the level of the injury. A few of these cases should be promptly recognized because of the vertebral deformity and clinical findings. Others with a permanent transverse lesion may show a subarachnoid block from local pressure and might be subjected to a useless operation. If the cord is completely crushed by the impact and this is followed by vertebral recoil, it may be that the tissue reaction will not be so severe as in cases in which

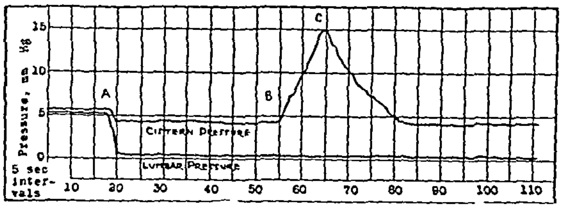

Fig 4 (J W, April 21, 1924).—Patient admitted five days after injury. Complete physiologic interruption below sixth cervical segment, with exception of spotted areas of tactile sensation to midpoint of thighs No demonstrable bone lesion Patient had both cranial and spinal injuries General condition bad. Double puncture showed a complete spinal block No operation Death in twenty one days *A*, removal of 2 c c of fluid by lumbar needle; *B*, jugular compression; *C*, pressure discontinued

there is less destruction and consequently more reactionary edema. If this is true, the Queckenstedt test in such a case will probably show no block of the subarachnoid space, or, at most, only a partial occlusion.

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[1] Thompson, J E Pathological Changes Occurring in the Spinal Cord Following Fracture Dislocation of the Vertebrae, Ann Surg **78:** 260 (Aug) 1923.

[2] Ayer, J B Puncture of the Cisterna Magna, Arch Neurol & Psychiat **4:** 529 (Nov) 1920, Spinal Subarachnoid Block as Determined by Combined Cistern and Lumbar Puncture, ibid **7:** 38 (Jan) 1922; Spinal Subarachnoid Block· Its Significance as a Diagnostic Procedure, Analysis of Fifty Three Cases, Arch Neurol & Psychiat **10:** 420 (Oct) 1923

[3] Mixter, W. J J Bone & Joint Surg **5:** 21 (Jan) 1923.

[4] Queckenstedt. Zur Diagnose der Rückenmarkskompression, Deutsch Ztschr f Nervenh. **55:** 325, 1916.

[5] Allen, A R.: J. Nerv. & Ment. Dis, September, 1911; March, 1914

There is much unsettled controversy as to the advisability of operation in severe partial lesions of the cord. Here, I submit, the indications are founded on the demonstration of a spinal block. A severe incomplete lesion with pressure sufficient to block the subarachnoid space should have the pressure relieved to conserve such fibers as escaped destruction by the original injury.

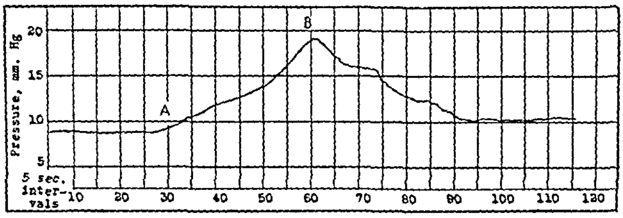

Fig. 5 (J. W. N.).—Fracture dislocation of first to fourth lumbar segments. Injury of three months' standing. Marked impairment with irritative symptoms. Chart shows high grade of incomplete block by Queckenstedt test. Fluid pressure required thirty seconds to rise to maximum, and thirty-five seconds to return to its original level. Down curve after release of jugular compression is halting, which is characteristic of cases of incomplete block. *A*, jugular compression; *B*, jugular release.

The technic of the Queckenstedt test should receive attention. In making the test, we have used as a routine the water manometer devised by Ayer. Sufficient time should be given after connecting the needle to allow the fluid to reach a steady level. This requires from one to three minutes. In some patients the mere placing of the hands on the skin of the neck preparatory to compressing the jugulars is followed by a rise of pressure in the lumbar manometer. This response has been attributed by us to the sudden fixation of the abdominal muscles of the patient in holding his breath or in his effort to brace himself for the anticipated compression of the neck. When the patient had a high lesion which was physiologically complete with paralysis of the trunk muscles, a rise of fluid in the spinal manometer did not occur from the mere touch of the skin of the neck. In a number of patients, jugular compression caused no rise in the manometer, while coughing or straining promptly elevated the fluid column (Fig. 3). Selling[6] called attention to this phenomenon in 1923, and concluded that the rise of fluid on coughing could not be used to exclude block.

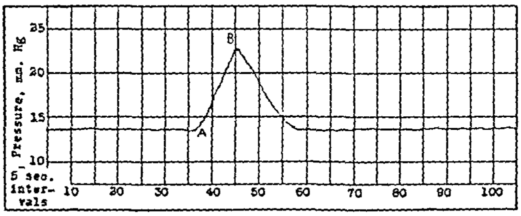

Fig. 6 (R. P., Oct. 6, 1924).—Comminuted fracture of fifth cervical vertebra. Complete physiologic interruption below sixth cervical segment. Queckenstedt test showed no block. Death thirty-three hours after injury. No operation. *A*, jugular compression; *B*, jugular release.

We have regarded the increase of spinal fluid pressure on coughing or straining as complementary to the Queckenstedt sign obtained by jugular compression. The rise of spinal fluid pressure on coughing results from a segmental venous back pressure below the obstruction of the subarachnoid space, and not from a rise of intracranial pressure, which is shut off by the block. This venous pressure below the level of the spinal block may be induced by raising the abdominal or thoracic pressure (Figs. 8, 9 and 10). In a few cases, notably with increased intracranial pressure, we have observed that the Queckenstedt sign is positive in the absence of spinal block. It is important to bear in mind this possibility in view of the occasional association of brain and cord injury. Cases with both head and spinal injuries may, with due precautions, be given the combined puncture of Ayer, which promptly confirms or eliminates a block of the spinal subarachnoid space and serves as a check to an erroneous interpretation (Fig. 4). No conclusions have been reached as to what effect the adoption of this test to secure evidence of pressure on the cord will have on the frequency of operation for spinal cord trauma. The decision for operation, even in cases with complete block, must finally rest with the clinical judgment of the surgeon when there are serious associated injuries or bad general condition of the patient from any cause.

Many patients with old cord injuries and severe disabling sequelae, if studied with methods that give actual information as to local compression, may be found to have lesions which operation may influence favorably (Fig. 5).

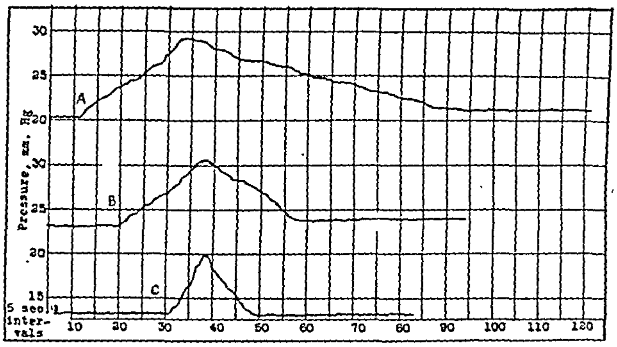

Fig. 7 (W. L., June 20, 1924).—Comminuted fracture of body of fifth cervical vertebra with forward dislocation of fourth cervical. Lesion almost functionally complete, but deep muscle sense feebly preserved in right foot and to a less degree in left. Prompt elevation of temperature. General condition unsatisfactory. No operation. Chart shows the spinal fluid pressure curves of three manometric tests. The first reading shows a high grade of block. The second, two days later, shows a partial recovery from the block, and the third, about twenty-four days later, shows that there was free passage of fluid in the subarachnoid space at the site of injury. The disappearance of the block may have been due to recovery from edema of the cord. Jugular compression: *A*, June 25; *B*, June 27; *C*, July 21.

Further experience with the test in cord injury is necessary to show what are its possibilities in the solution of some of the problems of cord edema. Reference is here made to the use of hypertonic solutions, which have a proved usefulness in the reduction of cerebral edema. Repeated tests for subarachnoid block in spinal injury might permit clinical deductions as to the value of such solutions in the less severe degrees of post-traumatic edema of the cord (Fig. 7). Demonstration of an early block might be followed in some cases by an operation in the four-hour period, which Allen believed necessary if cord incision was expected to reduce the edema. The main value of the test at the present time lies in its accuracy in demonstrating occlusion of the subarachnoid space. On the positive information thus obtained, the indications for laminectomy in cord trauma are immediately apparent. Of almost equal importance is the value of the test in excluding from operation those cases without pressure on the cord (Fig. 6). This is done by a simple procedure without risk to the patient. Since Jan. 1, 1924, the test has been used by us in fourteen patients for the purposes stated. In some of the earlier patients of this group, operation was done because we did not properly appreciate the significance of a total block in cord injuries. It was difficult also to abandon the attitude of extreme conservatism in dealing with this severe type of lesion which we formerly held. There were three patients admitted during this period in such bad general condition that no attempt was made to demonstrate a block. The number of patients on whom block determinations have been used as the main indication for laminectomy is too small and some of the cases of the group too recent for final conclusions as to what extent prognosis has been affected by use of the test. While the paper deals almost entirely with fracture dislocation of the spine, the test is useful in the study and diagnosis of penetrating injuries.

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[6] Selling, Laurence: Localization of Spinal Cord Tumors, Arch. Neurol. & Psychiat. 8:27 (July) 1922.

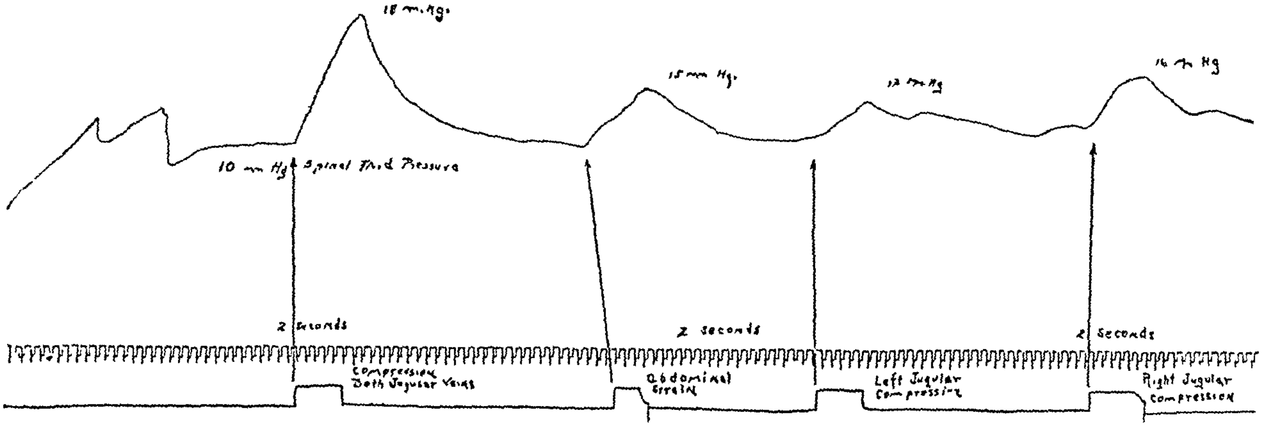

Fig. 8—Tracing of spinal fluid pressure made on patient who gave no symptoms of spinal block. In this tracing and in Figures 9 and 10 the prompt rise of fluid on jugular compression is shown with a more delayed fall on releasing pressure from the veins of the neck. The rise on coughing and on compression of the jugulars singly is shown. Compression of the left jugular in the three cases gave less response than did pressure on the right. Position of the patient in every case was horizontal and on the right side. The tracings were made by connecting the lumbar needle with a tambour.

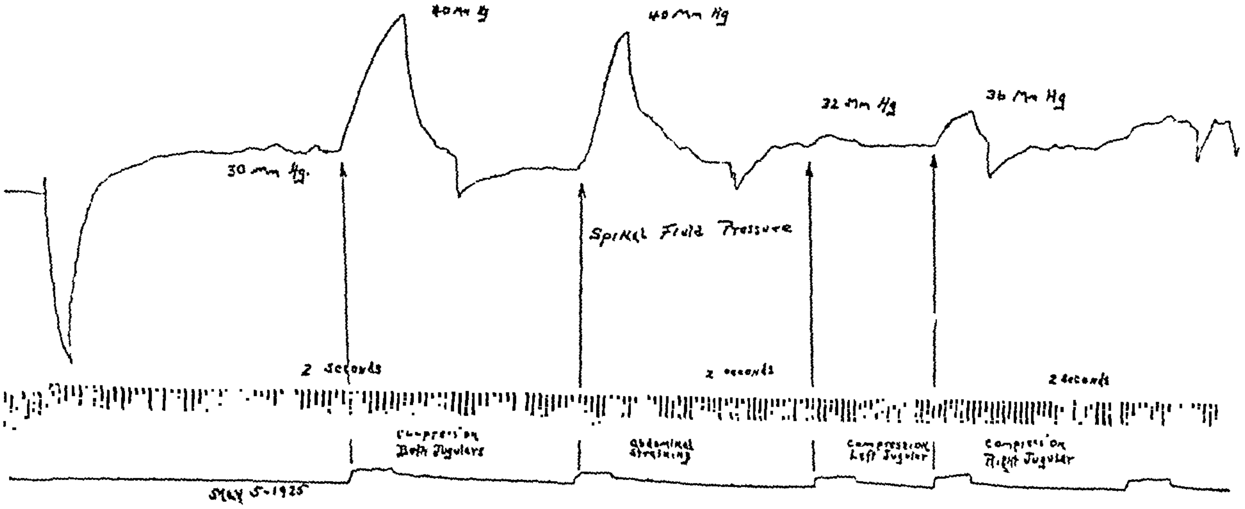

Fig 9.—Tracing of spinal fluid pressure made on patient who gave no symptoms of spinal block.

Of this series of fourteen patients with severe spinal cord injuries in which the test for subarachnoid block was used to determine pressure on the cord, the block was complete in seven cases and incomplete in four. Complete block as shown by the Queckenstedt test was verified by operation in five of the seven cases. Two of the patients were not operated on.

A brief report of some of these cases was made at the meeting of the Society of Neurological Surgeons in December, 1924, and the importance of subarachnoid block as the chief indication for operation was emphasized. The manometric tests in the cases reported are represented graphically on charts from pressure readings made by Drs. James G. Lyerly and Edmund J. Morrissey.

CONCLUSIONS

1. Clinical study of patients with severe spinal cord injuries generally fails to give early information as to the extent of the cord lesion.

2. Laminectomy for spinal cord injuries, except in penetrating wounds, is not indicated unless there is pressure on the cord.

3. Pressure on the cord following fracture dislocation cannot be demonstrated by clinical study or roentgen-ray examination unless there is considerable vertebral deformity.

4. Complete occlusion of the spinal subarachnoid space following injury should be taken to mean that the cord is compressed in a deformed or normal dural canal.

5. The demonstration of such compression of the cord by the Queckenstedt test or Ayer's combined puncture after spinal trauma should be considered an unequivocal indication for operation.

ABSTRACT OF DISCUSSION

Dr. Alfred W. Adson, Rochester, Minn.: Dr. Coleman has emphasized two very important points: the presence or absence of a block when the roentgen-ray findings are positive, and the presence or absence of a block when the findings are not positive. I have employed the Queckenstedt test, as presented by Dr. Coleman, in the diagnosis of spinal cord tumors, and it has proved of real value, since partial and complete blocks have been demonstrated when neurologic findings have been lacking. It is true that circumscribed arachnoiditis with the formation of cysts may give a complete block and be misleading in the diagnosis of a spinal cord tumor; but when this condition is present there is usually sufficient history to aid in the differential diagnosis. In my opinion, the Queckenstedt test should be of real value in helping to select operable cases. I have been rather conservative about exploring fractures and fracture dislocations of the cervical region, as some patients will recover spontaneously and others will improve by reduction of the dislocation. I have explored only those with definite pressure on the cord. Injuries of the dorsal region fail to respond well, whether or not surgical intervention is instituted. I am fairly enthusiastic about injuries of the cauda equina of the lumbar and sacral areas, since the injury is not a true cord injury, but an injury to the nerves; and, while there may be a complete block and the nerve may be seriously compressed, a good result may be obtained from a laminectomy. If the injury is of the conus, corresponding to the twelfth dorsal, the results from laminectomy are not always good; but if the neurologic level corresponds to the segmental level, that is, in about the second and third lumbar, a laminectomy is justified. If the roentgen ray reveals a fracture or a fracture dislocation of the twelfth dorsal, and the neurologic findings show an upper level corresponding to the lower dorsal segmental level, little is to be accomplished by a laminectomy. The subject is particularly timely, as a great deal of confusion exists about the surgical indications. Some surgeons are overenthusiastic and more or less radical; others are too conservative. If there is a possibility of accomplishing anything by surgical intervention, it should be instituted by all means, since without surgical intervention, little can be hoped for in many of these cases.

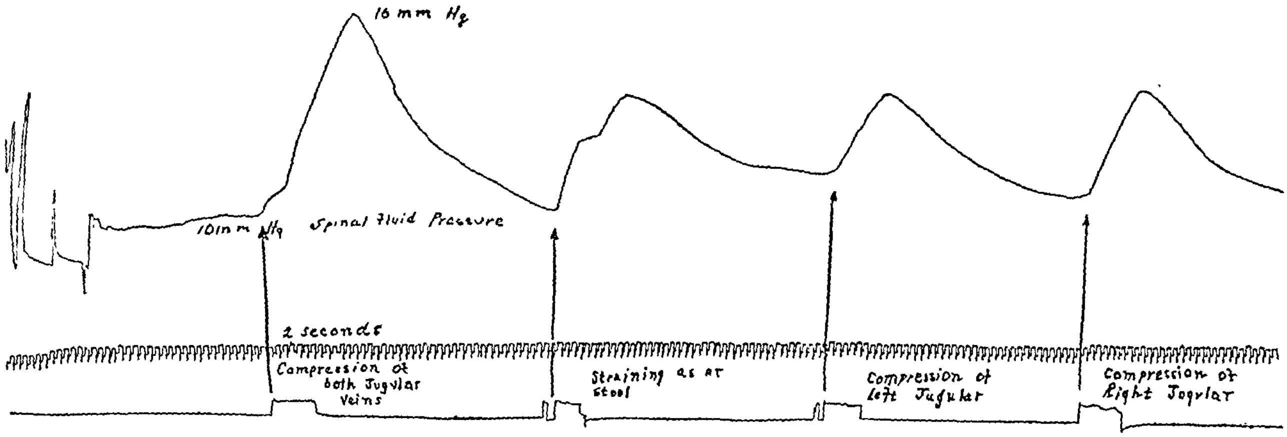

Fig. 10.—Tracing of spinal fluid pressure made on patient who gave no symptoms of spinal block.

Dr. Charles Bagley, Jr., Baltimore: In providing a common meeting ground for those favoring and those opposing operation in this group of injuries, this procedure as applied by Dr. Coleman will be useful in the management of spinal cord injuries. Because some cases with immediate slight cord injuries through edema and compression pass into the group of complete anatomic lesions, many have been unwilling to rob the patient of the chance offered by giving additional room for swelling and avoiding compression. The irreconcilables or what may be justly called radical surgeons will no doubt be comforted by the fact that through the employment of this method of diagnosis even the early stages of compression can now be detected. Dreading the late pathologic changes, I have made it a rule to operate in cases coming under observation early and I wish to call attention to five cases of fracture dislocation of the cervical vertebrae, in four of which there was evidence of complete physiologic block, while in the fifth case there was slight remaining function. Of the five patients, two adults operated on ten days after the accident died within a few days; a third one has not improved, though he is still living seven months after the operation. In none of these cases was the Queckenstedt test used, but the operation revealed a greater or less degree of compression in four cases. In the case in which compression was not revealed there has been no improvement.

Dr. Claude C. Coleman, Richmond, Va.: The discussions by Drs. Adson and Bagley emphasize just how far apart we are when attempting to settle the indications for operation in spinal cord injury on a basis of the clinical findings. For a number of years I have been bewildered by the conflicting statements from authoritative sources as to the indications for operation in acute injury of the spinal cord. The test for subarachnoid block furnishes the surgeon with a conviction which backs his course of procedure, whether he operates or whether he treats the case by conservative methods. I think Dr. Adson is quite right in excluding from consideration at this time the cauda equina injuries, which are really peripheral nerve lesions and should be operated on if the lesion is severe enough. My paper refers strictly to injury of the cord. I believe, however, that a patient with a cauda equina lesion will show a block if there is to be any benefit from laminectomy.

Tetanus Following Use of Bunion Pads as Vaccination Dressing.—Through investigations of the complications following vaccination against smallpox, eleven cases of postvaccinal tetanus which followed the use of bunion pads as a vaccination dressing have been investigated. Nine of these cases were fatal. Six of the physicians in whose practice seven of the ten cases of postvaccinal tetanus developed estimate that they had vaccinated approximately 700 persons on whom bunion pads were applied as a dressing. Bunion pads of the same varieties and from the same sources as those used in the cases which developed tetanus were collected from several localities. These samples were examined. Approximately 25 per cent. of these pads showed the presence of tetanus organisms. If the 700 pads known to have been used in the practice of these six physicians were contaminated with tetanus in the same proportion as those tested, it would mean that 175 persons were dressed with infected bunion pads and only seven, or 4 per cent., developed tetanus. In nine of the cases investigated, the tetanus followed a primary vaccination, while in two cases the data on this point are not available. It may, therefore, be significant that these cases all followed the cross-hatch or scarification methods of insertion, methods which undoubtedly tend to give more severe local lesions in primary vaccinations than are caused by the multiple puncture method.—Armstrong, Charles: *Pub. Health Rep.* **40**:1351 (June 26) 1925.

DIATHERMY IN JOINT INJURIES *

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ST. LOUIS

Our subject matter being diathermy, by which is meant "heating through," it will not, perhaps, be amiss to discuss first the more generally known forms of heat so that we may better understand and appreciate the distinct differences of effect produced by these various modes of heating human tissue.

We speak of heat as being conductive, convective and conversive. Conduction is that form of heat which is conveyed to the body by virtue of direct contact with a superheated substance. It is the old-fashioned household method of applying heat whenever that therapy seemed to be indicated. As examples of this form we make mention of the hot water bottle, hot poultices, fomentations, electric pads and hot baths. These appliances transmit heat to the part with which they come in contact by fact of contiguity. Convective heat radiates from a source approximating, but not in contact with, the body. Thus the heat emanating from the radiators in our homes or the superheated air cabinets are forms of convective heat. The numerous so-called bakers, be they heated by gas burners, electrical resistance wires or electric light, are only forms of convective heat. With respect to the latter, a qualifying statement is essential. Light, from the standpoint of a heat-producing agency, operates in two distinct and definite ways, which fact places it in two of our three groups. That part of the heat which is generated as a result of meeting resistance in its passage through the glass bulb and the air intervening between the source and the part to be irradiated is distinctly a form of convective heat, while the remaining rays, visible and invisible, striking the skin penetrate it, and meeting increased resistance are in turn converted into heat, thus forming and belonging to a third type; namely, conversive heat. This form may be defined as one in which light or electric energy, in its passage through human tissue, is converted into heat. Examples are the commonly known 1,000 watt deep therapy lamp, infra-red ray appliances, and the high frequency alternating current producing diathermy.

The reason for thus defining the various sources and forms of heat is to bring to our attention more clearly the necessity and value of discriminative application as applied to heat therapy. Properly used, the application of heat may be regarded as a valuable adjunct in the treatment of fractures and joint injuries. It seems wise, perhaps, to postpone that particular phase of our discussion at this time and consider for a few moments the mechanical aspect of diathermy.

By the term diathermy is meant the process of heating through the tissues as contrasted with convective and conductive heat, either of which operate, for the most part, by heating the tissue superficially and penetrating it very little. The source of diathermy is a high frequency current of high voltage and relatively low amperage. The strength of the current used may be any part from 100 to 3,000 milliamperes. The alternations or oscillations may range from one-half to two million per second and are so far removed beyond the point at which human tissue responds, either by muscular contraction or by electrolysis, that the result is a conversion of the electric energy into heat energy. For these reasons, it is not correct to speak of diathermy as being an electrical treatment per se. Electric treatment, as such, is always accompanied by a nerve response, muscular contraction or chemical reaction. This alternating current, which is also frequently known as the d'Arsonval current, is bipolar; that is, two electrodes are required, while the intervening tissue between them completes the circuit. By the use of suitable size and the proper application of electrodes, a knowledge of the desired amperage and duration of the current, the resultant heat may be localized and the intensity regulated almost at will.

The strength of the current is measured by an ammeter attached to the apparatus, which, for the most part, gives only an incomplete indication of the density of the current employed at the moment. The cooperation of the patient is a much more definite guide. The current is slowly increased to a point just beyond tolerance, or at least marked discomfiture, following which *it is diminished to a point at which the patient* will feel nothing but a comfortable warmth of the part treated. We have thus far spoken only of the so-called medical diathermy. Its object is to heat the tissues for the sole purpose of increasing the efficiency of the part treated. It is not destructive and is always within physiologic limits. By means of different types of electrodes and a change in the relation of voltage and amperage, the tissues may be so heated as to bring about destruction by desiccation or fulguration. This form is known as surgical diathermy, is extensively used, and is mentioned here solely for the purpose of properly identifying it and to avoid confusion.

The physiologic effect of these groups as thus defined may be briefly mentioned at this time. Superheated air, that is, convective heat and conductive heat which is produced by contact with a heated body, warms the tissues layer by layer much as a hot iron is heated in the forge. The immediate effect is a vasomotor dilatation followed by a venous stasis and frequently by free perspiration. The heat, however, penetrates barely beyond the dermis, for here the abundant vascular system dissipates it to other parts of the body. Wherever a relaxation of the superficial tissues is desired, this form of heat is indicated. Care must be exercised, however, to keep the temperature from rising beyond a point at which it becomes painful to the patient. If this occurs, the sensory nerve endings become temporarily paralyzed, which, although not particularly harmful, is nevertheless not desirable, for it tends to leave the tissues in an atonic condition.

The action of radiant light and heat for localized purposes is much the same as that of conductive heat just described, with this difference: The light rays possess a definite power of penetration, some deeper than others, and they are then converted instantly into heat, though here also a considerable quantity of it is carried off by the blood stream. Yet, as a result of penetration, much of the total volume is carried deeper into the tissues. For this reason, as well as for the ease, convenience, elegance and comparative cheapness, the modern 1,500-watt lamp is in popular demand. This apparatus is arranged in the shape of a parobolic globe, which causes the rays to be directed parallel to each other, thus avoiding a focal point and lessening to a minimum the probability of a burn. Incidentally, let it be mentioned that this modern type of lamp far exceeds in efficiency the commonly seen home-made contrivances. The latter lack the volume of illumination and the correct direction of the light rays that are so desirable.

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* Read before the Section on Orthopedic Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

Diathermy, as stated before, is a mode of heating deep tissues by means of a high frequency current which passes from one electrode to the other in straight lines and affects whatever tissue intervenes. We have here, then, a method of heating the deep-seated tissues that cannot be obtained in any other known way, and should appeal to the surgeon who believes in the efficacy of the functional treatment of fractures and joint injuries.

Surgeons with hospital and clinical connections still see an undue number of poor end-results following so relatively simple a fracture as a Colles fracture. The limitation of motion present after five or six weeks of immobilization may be due to adhesions or fibrositis. If the former, it is necessary to break or stretch them before additional motion may be restored, in which case the preliminary heating of the tissues enhances the operation. It is in the earlier stages of the treatment that heating procedures are of immeasurable value to combat swelling, spasm and pain. The greater the swelling, the greater the chances of adhesions being formed, and also the greater the opportunity for fibrous degeneration of the muscle cells. Not only does the edema influence fibrositis, but the increased tension on the sensory nerves causes more or less pain, which in turn is responsible for muscular spasm. These factors, swelling, pain and spasm, interfere materially with the favorable progress of the condition. Spasm interferes with effort at reducing the fragments, and is probably the most potent factor in antagonizing efforts of mobilizing the limb. The lymph flow under normal conditions is extremely poor, its force being almost entirely dependent on muscular action and joint movement. Immobilization then hinders even this meager force by adding to the already existing tension, produced by the extravasation of blood and lymph from the injured vessels.

It is an established fact that heat in some form or other is a most reliable analgesic and a most dependable agent for the control of spasm; also that it increases the arterial flow as well as the return circulation, thus bringing quantities of fresh blood to the part and carrying away excess accumulation of débris. Yet many surgeons prefer not to recognize these factors. To say or intimate, however, that the treatment of a Colles fracture, for instance, along the lines of immobilization and without heat or other physical therapeutic measures, is not attended in all cases with a full measure of success would be absurd and untrue. But the fact remains that those of us who have opportunity to see many end-results, which may be classified from 75 to 25 per cent. disability, find on inquiry that, in the treatment instituted, no active measures were employed beyond strict immobilization.

Those who do believe in the efficacy of the functional treatment have also come to believe in the value of properly heating the tissues preparatory to movements and massage. It is in injuries of this sort, fractures, sprains, dislocations, subacromical or subdeltoid bursitis, and allied joint injuries, that we bespeak a kindly word for diathermy. Its sedative warmth imparts a feeling of comfort keenly appreciated by the patient. Its relaxing action on the muscles near the site of the injury makes proper massage and movement, as seems best indicated in each given case, infinitely more effective. It promotes the absorption of exudations and relieves the intercellular tension. The form of heat that brings this about most satisfactorily is diathermy.

In chronic, panfibrous and hemifibrous ankylosis, brasiere can best be accomplished if preceded by diathermy, followed by radiant heat to relieve the deep-seated congestion.

During the last ten years, more than 70,000 treatments have been given under our direction in the physiotherapeutic department of the Washington University School of Medicine. The patients treated were for the most part referred to us by the surgical and the orthopedic clinics. Our conclusions gathered from this experience supplemented by impressions gathered from others of like experience leads us to these conclusions:

CONCLUSIONS

1. Diathermy is a safe heating procedure which can be localized in deep-seated tissues at will; the degree of intensity may be satisfactorily regulated by means of suitable electrodes of varying sizes, properly applied, and augmented by the cooperation of the patient.
2. It is a valuable measure to at least partial control of pain, spasm and swelling in the earlier stages of fractures and joint injuries, and contributes, therefore, materially to a favorable functional end-result.
3. Patients take kindly to it, they are favorably impressed with the procedure, and their cooperation is more easily secured when movements and massage are indicated.
4. Unquestionably, the period of convalescence in the treatment of fractures is materially reduced.
5. Its application seems indicated in postoperative bone and joint conditions, acute sprains, fractures and bursitis; when brasiere is found necessary; in acute and chronic arthritis, and in treating contractures and fibrositis.
6. It is contraindicated in cases of pus sac without drainage, when there is danger of hemorrhage, and in tuberculous joints and suspected malignancy.

5204 Kensington Street.

ABSTRACT OF DISCUSSION

Dr. H. D. Corbusier, Plainfield, N. J.: I have had considerable experience in using this modality. Restriction or limitation of motion of joints is an old story. Those of us who have obtained marked results from the use of nonoperative procedures are quite impressed with the value of diathermy. I use diathermy daily for treatment of limitation of joint motion in all joints of the body. The most numerous cases are in the knee, and in the wrist when there has been poor splinting of wrist cases; in so-called focal infections; in infections following the infectious diseases, and in obscure cases with no cause to be found. The introduction of heat deeply into these joints, which are at times firmly fixed in flexion, is a wise and satisfactory procedure. Diathermy is the only method by which this can be done. My technic is, first of all, to give heat superficially; that is, in the case of a knee we give the leg whirl; in the case of an arm we give the arm whirl, and then follow with diathermy. Of course, adhesions may reform, but I have failed to see many cases in which diathermy was not successful; that is, perhaps not forming a complete cure, but relieved to such an extent that one could use the words "a success" in speaking of them.

Dr. M. T. Koven, Brooklyn: It is very interesting in a discussion of diathermy to think of its value in the treatment of arthritis. We have found from experience that the treatment of gonorrheal arthritis by diathermy is almost a specific. We apply the diathermy not only to the joints involved but also to the focus of infection. In recent literature, one reads quite a bit of the treatment of poliomyelitis with diathermy. We have followed out that method whereby we are inducing diathermy at a part in the spine at which there is pathologic change and at the same time heating the leg or arm that is involved. Thus far our results have appeared to be very satisfactory. We are treating a man who has a traumatic transverse myelitis, sustained in an automobile accident with a resultant complete paralysis below the waist line. Diathermy is applied with the plates at an area corresponding to the lesion, and we find that, when the current is applied to the spine, the patient gets a sensation of impulses at the terminal extremities and there is considerable improvement in sensations and motor power.

THE AVERAGE SEX LIFE OF AMERICAN WOMEN

RELATION BETWEEN EXPERIENCES AND GENITAL FINDINGS: I. INTRODUCTION TO STUDIES[*]

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NEW YORK

It is probably well within bounds to affirm that our present beliefs concerning normal sex life and average experience and practice have the status of surmises standing on foundations no more secure than general impressions and scattering personal histories. It is time we began building on collected case records running through lifetimes in series counted in tens of thousands. In view of the pervicacious gonad urge in human beings, it is not a little curious that science develops its sole timidity around about the pivotal point of the physiology of sex. Perhaps this avoidance—not of the bizarre and the extreme, the abnormal and the diseased, but of the normal usages and medial standards of mankind—perhaps this shyness is begotten by the certainty that such study cannot be freed from the warp of personal experience, the bias of individual prejudice, and, above all, from the implication of prurience. And yet a certain measure of opprobrium would not be too great a price to pay in order to rid ourselves of many phallic fallacies. Our vigorous protests against the sensual detail of pornographic pseudoscience loses force unless we ourselves issue succinct statistics and physiologic summaries of what we find to be average and believe to be normal, and unless we offer in place of the prolix mush of much sex literature the few pages necessary for a standard of instruction covering sex education. Considering the incorrigible marriage habit of the race, it is not unreasonable to demand of preventive medicine a place for a little section on conjugal hygiene that might do its part to invest with dignity certain processes of love and begetting.

As to gynecology, it seems to have been too much busied with the operative work that constitutes nearly one fourth of major surgery to give proper time to certain fundamentals. We have trained students and interns with an outlook on laparotomy and pathology rather than on physiology, life-adjustments, and pelvic social problems. So far, the subdivisions of the incipient science of preventive gynecology have been better obstetrics, cancer research and control, and venereal disease restriction.

A plan has been suggested for a council to coordinate the work of the following organizations:

AGENCIES CONCERNED IN SEX PROBLEMS

1. Committee for Research on Sex Problems (under National Research Council); assists a number of special researches, chiefly on animals, and conducts a medical psychopathologic office study.
2. Bureau of Social Hygiene; surveys and assistance in sex problems; endowment over a million dollars.
3. American Social Hygiene Association, propaganda, sex education, combating prostitution and venereal disease, $200,000 a year.
4. Committee of Fourteen, New York (of Fifteen, Chicago; of Twenty, Utica); investigation of sex vice conditions and watch on legislation; about $15,000 a year in New York City. New York Society for the Suppression of Vice: to enforce obscenity laws; about $15,000.

5 and 6. Department of Eugenics and Eugenics Record Office, Cold Spring Harbor (under Carnegie Institution of Washington); studies in heredity.

7. Committee in Eugenics and Dysgenics of Birth Regulation (under Eugenics Committee of United States); sociological studies; newly organized.
8. Committee on Maternal Health (medical); study by clinics and research in contraception, sterility and sterilization; $21,000 in its second year, 1925.
9. American Birth Control League; publicity; amendment to state laws; clinic; some $60,000 to $80,000.
10. Voluntary Parenthood League; amendment to federal law; about $20,000.
11. Committee on Maternal Welfare (representing American Association of Obstetricians, Gynecologists and Abdominal Surgeons; American Gynecological Society, and American Pediatric Society); prenatal and postnatal care; death rates; puerperal fever; small funds.

Churches and Christian associations, social agencies and public health organizations; schools and colleges; courts and legal societies; medical institutions and societies; biologic laboratories.

THE NEXT STEPS

The Committee on Maternal Health found that, as soon as it had surveyed the field and persuaded seven clinics to work out contraception studies—indications, methods and results, and related sterility and sterilization—steps must be taken to develop essential data not available. Among these missing facts may be mentioned age at marriage and at childbirth, by single years, for American women; duration of their reproductive life, with fecundity and fertility; the findings that make, or point to, the diagnosis of sex experiences; exact genital measurements; the anatomy of the sex act and the bearings of it on health; together with the correlation of pelvic disorders and diseases with sex practices of all kinds—the whole based no longer on opinion, but on trustworthy medical records. This paper is an introduction to the series, covering several thousand histories.

As an important preliminary I propose the first summary of an epoch making and elaborate study published by Katherine B. Davis, Ph.D.,[1] for the Bureau of Social Hygiene.

AUTO-EROTIC PRACTICES

From the anonymous answers received from a questionnaire sent to American college women living in city, town and country, 1,183 reports were summarized. The average age was 37, the largest group, 30. Two thirds of these unmarried women report the practice of masturbation. One third of the total number continue the practice. More than a third of those that started stopped within a year. Among the total auto-erotics, half carried on from ten to twenty years, while of those that continue, a third have kept on from twenty to thirty years. The practice commenced for the most part between the ages of 5 and 11 (42 per cent.), that is, well in advance of puberty, while before reaching 16 nearly 60 per cent. of those practicing had begun. The mode or peak of the beginnings is at the eighth year (Fig. 1). Herein lies a notable contrast between male and female, since three fourths of the males start between 12 and 17. As for orgasm, though the term was not always understood, it seems to be late in developing, since its appearance is listed, in 62 per cent. of those reporting, as beginning at or after the eighteenth year. The two chief reasons given were, first, to secure pleasure (with no great difficulty in stopping) and, second, the desire for relief from tension, or else an uncontrollable impulse for release, with unsuccessful efforts to break off. The two classes were nearly alike in their membership. Suggestive reading is listed as a rather minor excitant, and very little blame is laid on "spooning" or dancing.

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[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Davis, Katherine B.: Study of Certain Auto-Erotic Practices, Ment. Hyg. **8**: 668-723 (July) 1924; **9**: 28-59 (Jan.) 1925; A Study of the Sex Life of the Normal Married Woman: I, The Use of Contraceptives, J. Soc. Hyg. **8**: 2 (April) 1922; II, The Happiness of Married Life, ibid. **9**: 1-25 (Jan.) 1923; III, The Happiness of Married Life, ibid. *9: 129-146 (March) 1923.*

In the matter of frequency, one third report once or twice a month; with a fourth it is less often; with a fifth, once a week; but the duration of the practice at this rate or oftener is not given.

A correlation between masturbation and health at the time of reporting, in a list that covers the third that never experimented, the third that discontinued, and the third that continue, shows a "real difference" in the way of better health among those keeping on with the practice. Moreover, there is no appreciable difference in health between those who began early and those who started after 18. Effects called "good" and "negative," when grouped together, give 61 per cent. Not one in ten asked advice about the habit. Cessation was brought about as follows: One third, for fear of results; one third, because of feelings of shame or wrong-doing; and one fifth outgrew the habit.

RELATION WITH OTHER SEX PRACTICES

The relations with other sex practices are given in percentages, with the figures for the married group in brackets. All sex experiences denied, either auto-erotic or homosexual or heterosexual, 30 per cent. (51); sex intercourse only, 1.3 (2); homosexual physical relation alone, 4.5 (8); masturbation only, 42 (27); both masturbation and homosexual experiences, 12 (6.5); masturbation and sexual intercourse, 7 (3.6); all three, 2.6 (1.3); total who had had sexual intercourse, 11 (7); total who had homosexual relation, 19 (16). Total masturbation at any time, 65 (38). Finally, it is to be noted that about one third of those who have masturbated have had other sex experiences.

As this large group represents a type of intelligent womanhood known to be busied in productive occupations, and reasonably assumed to be trained in self control, and as its admissions are probably minimal for the group or for less trained women, it seems to me a fair inference that auto-erotic practice is rather average experience among women and that moderate usage may be called a normal sex experience. Two important bearings of these new data on sex education lie in the need of beginning of instruction before five years of age, and the ability to remove much unnecessary mental castigation.

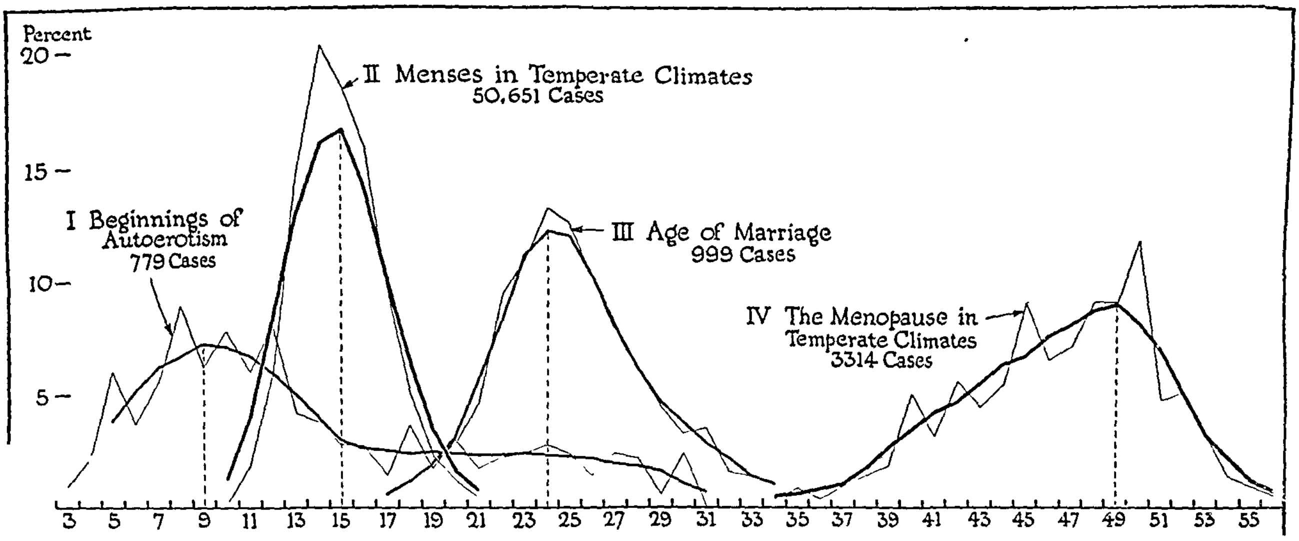

Fig. 1—Main periods of sex life of women of the temperate climates: Information concerning auto eroticism and marriage was obtained from ated Americans, on the beginning and ending of menstrual life, from a number of countries, from which our women differ by starting some earlier and finishing later, as shown in other charts. The curves have been smoothed on a four year center, excepting the marriages. The features are the early age at which masturbation must be watched for, and the wide span of both puberty and the menopause. In both, late and late finish assume large proportions The menopause is much nearer 50 than 45. The peaks at round numbers, such as 45 and 50, show untrustfulness of any memory other than recent.

MARRIAGE

Dr. Davis' married group of 1,000 averages 38 years old, with 70 per cent. college graduates. The median age at marriage was 25.7, and the number of marriages reported as happy, 87 per cent. Half the number report pleasurable sex relations throughout their married lives, the average duration of marriage being twelve years. Two thirds started pleasurably. One third showed alteration in feeling thereafter, the gains and the losses apparently very nearly balancing. The difference in pleasurable relations between those instructed before marriage and those not instructed was found to be significant, however meager the instruction. About one in twenty mention reception of information on birth control. A previous habit of masturbation did not have any effect on initial sex relations, and in the early years of marriage pleasurable reactions were significantly higher, but responsiveness persisted longest in the group that never masturbated. To judge by known cases, a fourth continued the practice after marriage. Among the fourth to whom the sex relation was distasteful, apparently about equal responsibility belongs to states of mind, to frigidity, and to faults of the husband. Fear of pregnancy plays little part, and mention of previous masturbation as a cause is notable for its absence.

The degree of intensity of the sex impulses of the wife as compared with those of the husband gave 31 per cent. as "about equal," the wife's greater in 3.5 per cent., and the husband's greater in 62 per cent. The frequency of desire ran close to these ratios in husband and wife. In frequency of repetition of coitus, the average comes somewhere near twice a week, as nearly as I can make out from the tables. Intercourse continued during entire pregnancy in 25 per cent., and from a few weeks to seven or eight months in 60 per cent.

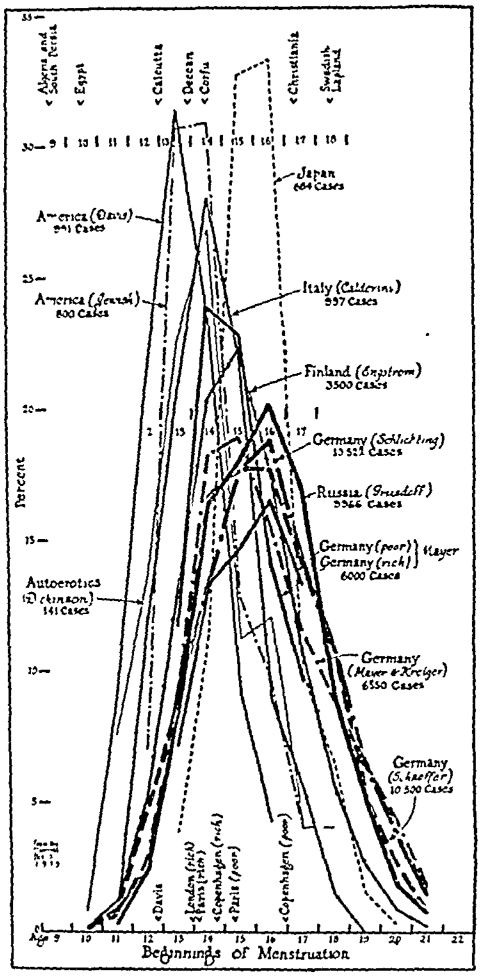

Fig. 2.—Data from which the general curve of Figure 1 is compiled. The records of 50,651 puberties are shown, to contrast various countries and climates and classes, the poor and the rich, the well nourished and the well educated. For each group reported, one should know details of the conditions of nourishment and nervous system and prosperity and, possibly, sensual stimulus, though the auto erotic subjects here are no earlier than their other American sisters. Finland, as a cold country, calls for explanation, with its early start. Darker lines indicate larger numbers.

CHARTS OF SEX LIFE

As an example of what is under way in the new plan of getting averages or standards, we have assembled on a graph (Fig. 1) the times of occurrence of the beginning of sex consciousness, of puberty, of marriage, and of menopause, finding the pointers toward a good deal of material in Kisch.[2] Where sufficiently numerous, American data alone are used. Where there are few from this country, as in the matter of the menopause, 3,200 cases from other temperate climates have been charted and the 332 American cases compared with them before plotting the larger number as an average.

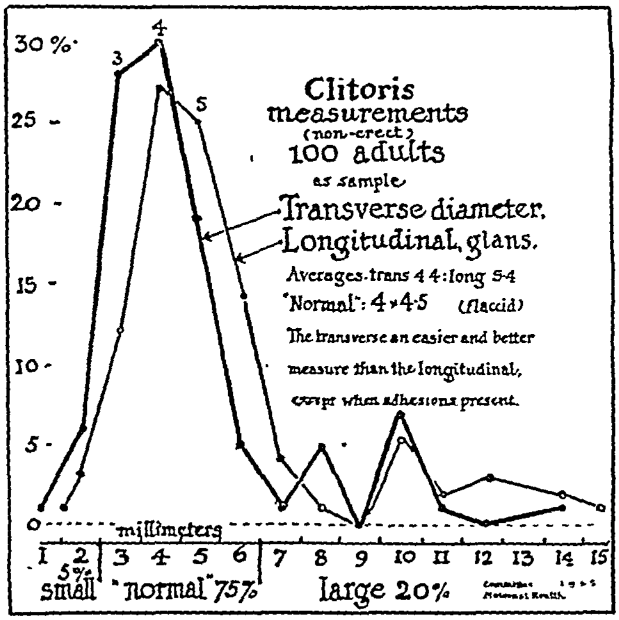

Fig. 3.—The utility of charting frequencies. Because the "average" is used in the anatomies in giving these diameters, other authors would class this largest group as "small" organs Morris gives 8 mm., for instance, as average.

The verification of figures and curves and the smoothing of curves have been in expert hands. The marriage curve is drawn only from American college and club women because of the absence of data by single years for Amercan women in general.[3]

We learn from this diagram that instruction concerning auto-eroticism must begin long before the time we had supposed. The curve rises rapidly from the fifth year and reaches its peak at the eighth. We learn further that to stress 13½ or 14, the average age for the menses to begin, is misleading when so large a proportion (among the 50,651) belong earlier, and a still larger group later. Even more markedly is this width of spacing true of the menopause. The skewness of this curve is striking. We have been teaching our patients to look forward to release at 45. Here we see that the greatest frequency is 49. These and other instances of the practical utility of applying modern statistical methods to our special work will be discussed more fully later.

MISLEADING PRESENT FIGURES

Only by charting can one acquire ideas of proportion. Thus, one discovers how misleading the term "average" may be. One learns to ask always, "What is the more frequent dimension or grouping?" This was shown when we started to inquire what constituted a normal or average clitoris. About the genitalia even anatomists are loose in their statements, the diameters running from 8 mm. (Morris) to 6.7 (Testut) and 5.6

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[2] Kisch, E. H Das Geschlechtsleben des Weibes, Berlin, Urban & Shwarzenberg, 1904.

[3] In our reprint and in the Transactions of the Section, separate graphs will show the multiple lines of the many sources from which this chart is made up.

(Waldeyer, Poirier, Jayle). This is because they had on a list a few scattering large examples. A graph of distribution of measurements shows strikingly that 4 mm. is the greatest frequency of both diameters of the glans, and exhibits the way the transverse measurements consistently group lower than the anterior-posterior. The genitalia have been the subject of no proper study of types and dimensions.

RELATIONSHIPS

We are studying the following propositions, among others, in subsequent sections.[4]

The dimensions and appearance of the hymen and of acquired hypertrophies about the vulva and vagina furnish much more diagnostic evidence of sex experience than is commonly apprehended.

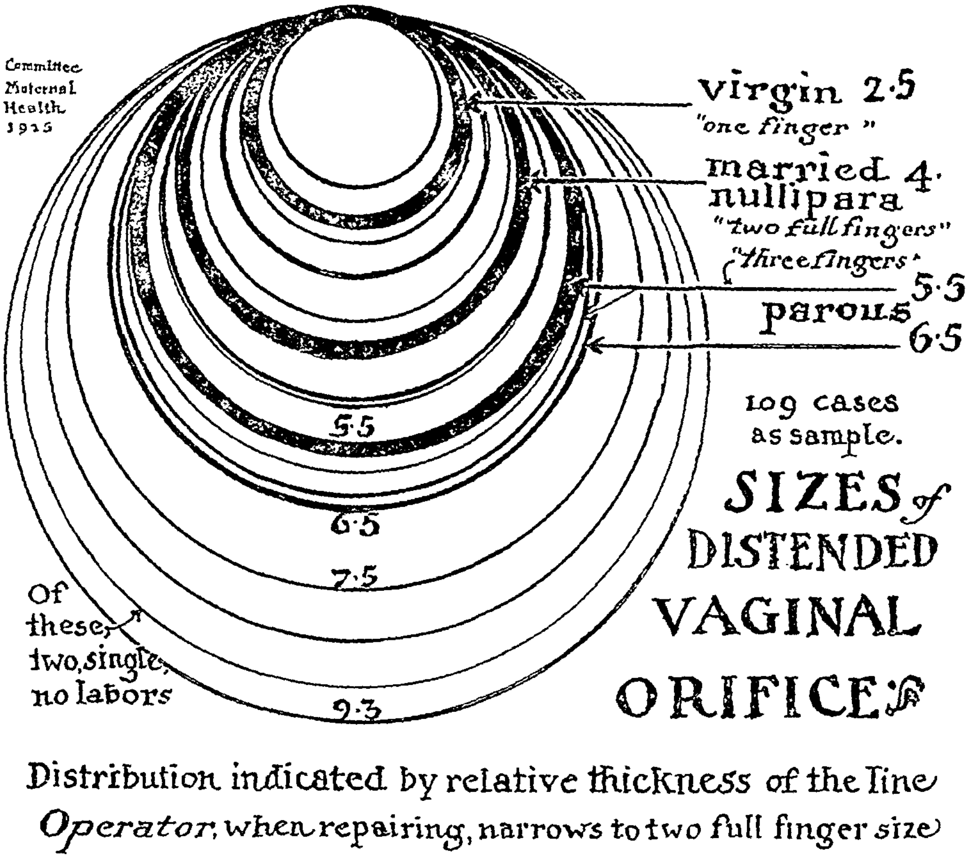
Committee Maternal Health 1925
virgin 2·5
"one finger"
married 4·
nullipara
"two full fingers"
"three fingers"
5·5
parous
6·5
109 cases as sample.
SIZES of DISTENDED VAGINAL ORIFICES
5·5
6·5
7·5
9·3
Of these, two, single, no labors
Distribution indicated by relative thickness of the line
Operator, when repairing, narrows to two full finger size

Fig. 4.—Distribution of an unselected series of introitus distensibilities from office practice. To be of value, there should be three times as many in each series; but the trend is shown.

The untouched hymen admits no more than the average adult forefinger. Thus stretched, the edge is sharp to the touch, the sensitiveness well defined. Sharpness of edge disappears only from tearing or from a process of gradual stretching, and, if the distention is gradual and neither excessive nor too prolonged, will return.

Openings of the hymen larger than one finger are the result of one of the following agencies: douching, gynecologic treatment, coitus, delivery or vaginal friction.

Under graduated, oft-repeated stretchings, degrees of elasticity or distensibility may develop sufficient to allow the passage of a full sized head or of the adult hand without a nick of hymen or injury to other structures. Such fully dilatable, undamaged hymens, close or open, belong to the vigorous coital or manual massage groups. Either head-stretch or hand-stretch may produce the gaping vulva.

Well marked acquired hypertrophies about the vulva are auto-erotic evidence.[5] These consist in largely developed labia minora and prepuce, laid in many-wrinkled, darkened folds, sometimes studded with outstanding sebaceous glands; in tabs of the meatus; in prominent veins; in active pelvic floor muscles; and, infrequently, in an enlarged clitoris.

Vaginal distensibilities and surface appearances, particularly in the nullipara, give clear evidences of marital or extramarital overindulgence, or actual or relative impotence or neglect.

THE VAGINAL ORIFICE

Measurements and classifications show the main groupings to be the conventional ones; namely, virgin, wife and mother. With these our histories develop standard diameters of 2.5, 4 and from 5.5 to 6.5, respectively. To the three groups (1) intact, unentered hymen, (2) married nullipara (or cohabiting imparous single woman), and (3) parous woman we add (4) the nulliparous orifice of very vigorous coitus; (5) the virgin orifice massaged to various dimensions—some among the largest—and (6) the parous orifice that seems to owe its immunity from damage to hymen or tear of pelvic floor to the oft-repeated stretch of one or both the foregoing experiences. For the crucial test of the intact hymen, that is, one free from entry by adult phallus or from finger frictions, it is shown that appearance — except for gross tears—counts less than sharpness of edge and sensitiveness taken in conjunction with diameter under distention. The measurements were made by using the finger or fingers as calibrator, noting the depth of entry on the digits, or by the passage of graduated glass cylinders. The hymen edge was studied (for our drawings that were all made life size) by passing and then partly withdrawing a glass ball in order to spread the membrane out, or else by a cotton wad held in forceps. Vaginal profile diagrams were drawn full size by using the subpubic arch as the point of departure for measurement and direction, with the patient either in a knee chest posture with the sound, or in the dorsal posture. The fourth method was the glass test tube of average phallic diameter (3.3 cm.) to observe visually the vulvar and intravaginal mechanical factors. Thereby a vaginismus is observed through the bottom of the glass to be due to a tight hymen or spasm; or seen to be caused by impingement of the tip on an unusually deep or stretched and reddened fossa navicularis; or else with ample vaginal orifice, it is noted, through the anterior wall of the glass, that the meatus is, or when pushed on, becomes vaginal in outlook, and therefore in coitus is spread wide open and traumatized. Lastly, a raw cervix in the vaginal axis may be seen through this speculum to be the tender target.

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[4] Tables and illustrations are given in the reprints and in the Transactions of the Section.

[5] Dickinson, R. L.: Hypertrophies of the Labia Minora and Their Significance, Am. Gyn., September, 1902; Urethral Labia, or Urethral Hymen, Pathologic Structures, Due to Repeated Traction, Am. Med. 9: 347-349 (Jan.) 1904.

BIRTH CONTROL

We have some definite figures concerning the prevalence of the practice and evidence of the standing of birth control among women of fine type. Among the first thousand answers to the Davis questionnaire, only seventy-eight expressed disapproval of any means to prevent conception. Approval "in principle" was expressed by 73 per cent., and these employed some form of contraceptive and averaged 1.9 children and 2.5 pregnancies each. Abstinence belonged to 8 per cent. Of the remainder it is not possible to say how many were sterile, but Dublin's[6] 20 per cent. sterility for New York City, and the proportion of childless homes reported from Philadelphia would make it not unlikely that, save for the abstinents, those who used no preventives had no reason to do so. One infers also from the tables that economic and health reasons in nearly equal proportions influenced 70 per cent. of the users of contraceptives. To 37 per cent. of those instructed information was given by physicians.

Though it forms an important section under the title of our paper, the order of popularity of the various measures and the percentages of safety need not be taken up here, as they have been fully discussed in the first report of the Committee on Maternal Health,[7] drawn from the figures of the London and New York birth control clinics and from the Davis group and covering about 4,700 cases in all. The unreliability of these returns calls for the real investigation of efficacy and harm or harmlessness which is now under way in university and other clinics. These studies, and the investigation of the indications and of the field of sterilization, and the researches on methods that would do away with the present mechanical schemes, should, in time, give the committee adequate definitions and a proper array of evidence of value.

CONCLUSION

As we began, we conclude. Organized study of certain neglected aspects of human sex physiology and practice are due and overdue. There is a part of this investigation that can be cared for only by the medical profession. Shall the American Medical Association have any representation in these activities?[8]

438 West One Hundred and Sixteenth Street.

ABSTRACT OF DISCUSSION

Dr. James F. Cooper, New York: I represent the American Birth Control League of New York. I was called to undertake clinical research work and to direct the activities of that department. We have been conducting a clinic for the contraceptive treatment of married women, who under the laws of the state of New York are entitled to that advice. Four thousand cases have passed through that clinic and we have collected quite an amount of data in regard to the normal and abnormal sex life of women. Our experience deals with another class of people from that reported by Dr. Katherine Davis. She had the intelligent class, whereas ours are very largely drawn from the ordinary dispensary type of patient. The information we have received from them in regard to the normal sex habits coincide pretty much with the report made for this other group of women. I think what Dr. Dickinson has given might be considered as a cross section of the life of the average American woman in sex matters. The one big thing I want to emphasize at this meeting is what Dr. Dickinson brought out, namely, we have lay organizations undertaking the work which should be undertaken and sponsored by the medical profession. The request came to the organization for certain gynecologic information, and we found there was no reliable information to be given. On that account a research department was instituted to investigate the various contraceptive methods with the idea of learning their relative values and respective merits. This was a lay organization, but soon it became evident that the scientific side was necessary, so a small group of physicians was brought together to undertake that pioneer work, which has been going on for three years. I am the person Dr. Dickinson referred to as the member of the committee who wanted the medical profession to take up the work and to study the scientific problem of contraceptives and also the sex problems that are presented from time to time. When the time comes that our professional people will take up this subject adequately, our birth control clinic will have no need for further existence. Until then we are going on with the scientific work and publishing reports which can be secured by any physician on application to the organization; but the point *I wish to make is that it is a matter for scientific study.* Too many times, when I bring this matter before medical societies, it is looked on with disdain. With the terrible mortality we have in obstetrics and with the great morbidity, I feel we can never reduce to any extent the 20,000 maternal deaths each year until we are able to study our cases and find out the causes that contribute to this enormous mortality and until we study these cases and give to those who are rightly entitled to it the contraceptive information needed rather than *turn them aside without giving proper information.*

Dr. Robert L. Dickinson, New York: My advice is to start clinics for the study of these sex problems, contraception, sterility and sterilization, with emphasis on sterility, as it is an important factor. Quite recently a statistical study from the Metropolitan Life Insurance Company showed that one out of every five marriages in New York City is sterile. Regarding sterilization of the unfit, H. H. Laughlin of Cold Spring Harbor is the authority. No contraceptive information of any value can be obtained in Holland. We are trying to find out how France restricts its births. I hope this section will take an interest in those scientific investigations of sex that are basic. Our first paper today took up the latest discovery in the physiology of sex; our new study takes up the most neglected and interesting matter in obstetrics and gynecology.

Color Vision Among School Children.—As a part of the examination of 12,000 school children in Nassau County, N. Y., New Castle County, Del., Porter County, Ind., Frederick County, Md., and in Spartanburg and nearby mill villages in South Carolina, the color vision of each child was tested. Holmgren's wool test was used. Naming of the colors was not required, but only the ability to sort similar colors As the distinguishing of delicate shades was not required, only the more pronounced cases of defective color sense would be found. Two per cent. of the boys were affected, as against about 0.25 per cent. of the girls. Defective color sense of the type found among school children does not seem to be associated with visual acuity.—Collins, S. D.: *Pub. Health Rep.* **40**:1521 (July 17) 1925.

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[6] Dublin, L. I.: Bull., Metropolitan Life Insurance Company, 1924. The Declining Birthrate; National Birthrate Commission, London, 1916, p. 35 (second report, 1920).

[7] Contraception—Medical Review of the Situation, Am. J. Obst. & Gynec. **49**:95 (Nov.) 1924.

[8] At the meeting of the Section on Obstetrics, Gynecology and Abdominal Surgery, May 29, 1925, Dr. Dickinson offered a resolution, in the form of a motion, that the chairman of the section appoint a committee to consider the matter of cooperation with other responsible organizations on the study of sex problems. The motion was seconded by Dr. J. C. Litzenberg, Minneapolis, and carried (The Journal, June 13, 1925, p. 1833). The author also offered the following resolution, which was seconded and carried: "*Resolved,* That this section hereby recommend the alteration of existing laws wherever necessary so that physicians may legally give contraceptive information to their patients in the regular course of their practice."

PERIRENAL SCLEROSIS (CHRONIC CICATRIZING PERINEPHRITIS)

REPORTS OF TWO CASES OCCURRING AS A SEQUEL TO PERINEPHRITIC ABSCESS *

VINCENT J. O'CONOR, M.D.
CHICAGO

Perinephritic abscess has been the subject of extensive review in medical literature. On the other hand, the more chronic inflammatory conditions which result in sclerotic thickening of the renal capsule have received but slight consideration.

Inflammation of the fibrous and fatty investment of the kidneys, perinephritis in the narrower sense of the term, may accompany all the acute and chronic processes that disturb the kidney; and depending on the variety of the inflammation, leads to thickening, adhesions with the renal parenchyma or subcapsular suppuration.

Whether extensive perirenal suppuration occurs or not, a persistent indurative process may continue until the perinephritic fat and fibrous capsule of the kidney become converted into an unyielding cicatricial shell.

Hartmann,[1] one of the earliest writers on this subject, considers that nonsuppurative perinephritis is an important pathologic entity because of the adhesions which it causes between the kidney and surrounding organs. He describes this as being characterized in its slight forms by a simple thickening of the capsule with induration and adhesion; in the more severe types there may be veritable sclerolipomatous tumors formed around the kidney; the thickened hardened fat may even invade the kidney, especially in the region of the hilum, by the substitution of sclerolipomatous tissue around the calices.

Hartmann, Carswell,[2] Dupuytren[3] and Bricheteau[4] have reported cases in which thickening of the renal capsule has resulted in an invasion of almost the entire substance of the kidney itself.

Fürbringer[5] states that when the perinephritic process is of long duration, and tends to recovery, *fibrous encysting and thickening* of the surrounding tissues are observed and the kidney may become atrophic.

Kolischer[6] says: "After the acute stage [of infection] has passed, the inflammatory infiltrations may become organized and finally be transformed in fibrous, cicatrical tissue. Either this fibrous transformation of the perinephritic fat may lead to compression of the kidney, or the formation of cicatricial strands may attach the kidney to other intra-abdominal organs and may also dislocate the kidney by their progressive contraction, or both conditions may be combined."

Keyes[7] says that the protective type of perinephritis is seen to a greater or lesser degree in connection with every chronic suppuration within the kidney or its pelvis; for it consists of nothing more than a round cell infiltration and subsequent sclerosis whereby the connective tissue, with the fat in its meshes, becomes more densely adherent to the kidney over the surface. But this process, if long continued, leads to cicatrization with fatty degeneration, whereby the kidney envelop is changed into a dense mass of scar, yellow with contained fat, the fat being a hard mass held in the meshes of the scar tissue.

It is not my purpose in this report to provoke further discussion as to the route by which infection may reach the perinephrium. Older writers[8] support the theory of the origin of perirenal suppuration as being within the kidney. More recent work[9] tends to the belief that septic material is more frequently deposited in the renal cortex and perinephrium by the blood stream. Since the blood supply of the perirenal tissues is independent from that of the kidney proper, it is possible that infection may be deposited there without otherwise affecting the kidney.

Herringham[10] believes that injury can damage the perinephric structures. There may be hemorrhage between the capsule and the kidney or into the perirenal tissues independent of the capsule. If low grade infection occurs in the hematoma, a gradual organization and fibrosis may result.

The lack of data regarding the effect of renal compression from surrounding layers of cicatricial tissue tends to the conclusion either that the process rarely progresses to the extent of producing subjective symptoms or that it has been disregarded as a possible cause of renal pain.

W. J. Mayo[11] reports: "I have been slow to admit that capsular compression of the kidney could be the cause of symptoms. . . . In our experience, decapsulation has been valuable in this small group of cases in which there are scars and lime deposit in the capsule of the kidney."

The symptoms produced by this indurative type of chronic perinephritis are the result of renal compression or displacement.

Dull aching pain localized in the region of the affected kidney is frequently the only subjective symptom. When abnormal attachments are lacking there is usually no abdominal discomfort. Since the fibrous encasement of the kidney prevents its normal adjustment to increased vascularity, the ingestion of large quantities of fluid may cause a temporary increase of pain in the affected kidney.

The diagnosis of this condition is reached by the process of elimination. As a rule, there are no urinary symptoms, and a continuous dull ache in the renal region is the only complaint. A past history of a nonpersistent urinary infection, of perinephritis, or of an injury that has been directed to the renal region, may be suggestive. No evidence of infection, stone, tumor or urethral obstruction is discovered. Unless there is marked displacement or very firm adhesion of the kidney below, palpation and roengenography will give normal findings. Mathé[12] has recently reported an instance in which he demonstrated by pyelography that adhesions following perinephritic abscess had anchored the kidney high up in the renal fossa, thus preventing even normal mobility.

I believe the two cases that form the basis of this report will illustrate the importance of an early diagnosis and the beneficial results attending complete removal of the cicatricial investment of the kidney.

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* Read before the Section on Urology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Hartmann: Bull. Soc. anat. de Paris **60**: 360, 1885.

[2] Carswell: Illustrations of the Elemental Forms of Disease, London, 1838, Plate 1.

[3] Dupuytren: Gaz. méd. de Paris, 1859, p. 379.

[4] Bricheteau, in Rayer: Traité des maladies des reins, Paris **3**: 616, 1841.

[5] Fürbringer: Traité des maladies des organes urinaires (transl. by Hartmann), 1892, p. 661.

[6] Kolischer: J. Urol. **8**: 149, 1922.

[7] Keyes: Modern Urology **2**: 452, 1918.

[8] Israel: Chirurgische Klinik der Nieren Krankheiten, Berlin, 1901. Ransohoff: Keen's Surgery **4**. Guiteras: New York M. J., Jan. 27, 1906.

[9] Braasch: Surg., Gynec. & Obst. **21**: 631, 1915. Brewer, cited by Braasch. Hunt, V. C.: Perinephritic Abscess, J. A. M. A. **83**: 2070 (Dec. 27) 1924.

[10] Herringham: Kidney Diseases, London, 1912, p. 321.

[11] Mayo, W. J.: Tr. Sect. Urol. A. M. A., 1919, p. 34.

[12] Mathé, C. P.: Surg., Gynec. & Obst. **40**: 605 (May) 1925.

The patients were young men. The symptoms of renal compression became severe several years after an apparently successful drainage of a right perinephritic abscess.

Both patients complained of a dull lumbar pain, which was localized and did not radiate to the abdomen, groin or thigh. In each instance the pain was markedly increased when the daily fluid intake exceeded 3 quarts. The pain became acute and sedatives were required when a quart of fluid was taken during a two hour period.

The only objective finding was a deficiency of function on the affected side. There was no evidence of stone, tumor or urinary obstruction, and the ureteropyelograms were normal. This unilateral diminution of renal function was evidenced by a fixed low specific gravity, a lessened excretion of urea, chlorids and total solids, and a retarded phenolsulphonephthalein excretion. In each instance the opposite kidney was normal or slightly more efficient than usual. These divided urine tests were made from two to four times in each instance before operation.

The operative procedure consisted in a complete removal of the cicatricial capsule and a thorough mobilization of the renal pedicle, pelvis and upper ureter.

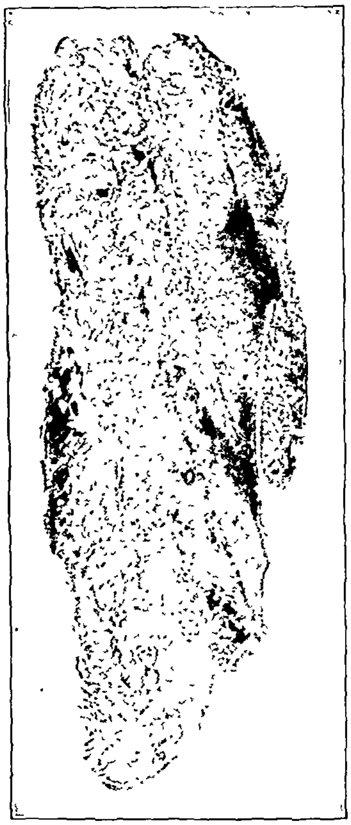

Fig. 1 (Case 1).—Cross section of perirenal scar, showing sclerotic tissue without any gross appearance of contained fat.

The decapsulation, or decortication, was performed with care, as it was necessary to use sharp dissection in removing the scar. Any attempt at stripping the capsule resulted in the tearing out of cortical tissue, which was firmly adherent and in some areas surrounded by the sclerotic tissue.

According to Kolischer, the term "nephrolysis" was introduced by Rovsing to denominate an operation the purpose of which is to free the kidney from pathologic conglutinations and attachments. This term seems more appropriate than decapsulation or decortication.

Thévenot[13] reported a case of sclerous perinephritis developed from an old kidney infection. After "decortication" there was relief from pain, and complete functional efficiency of the kidney was restored.

Nicolich[14] reported a case of fibrolipomatous shell enveloping the kidney, the capsule being adherent to the perinephritic mass and to the kidney. There had been intense lumbar pain for fourteen years. "Decortication" was performed with difficulty, and there was complete cessation of pain.

In one of the ten cases of perinephritic abscess reported by Ockerblad,[15] the fat capsule at operation was found thickened and congested and with many surrounding adhesions. Relief was obtained by removal of the adherent mass.

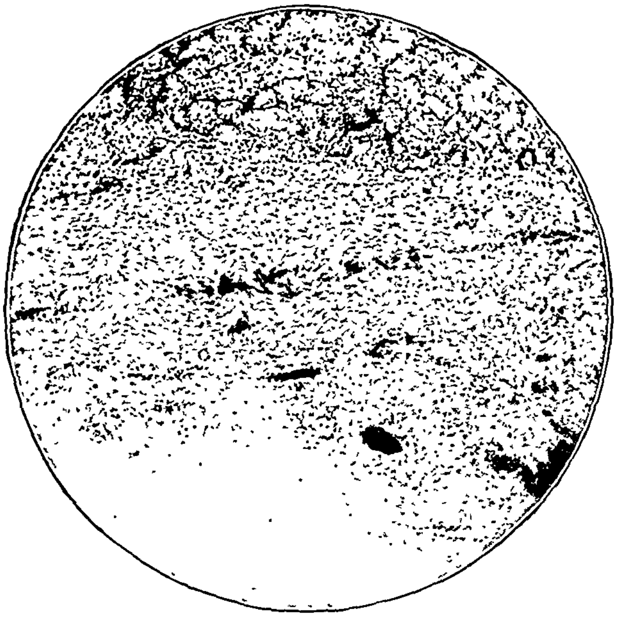

Fig. 2 (Case 1).—Fibrous tissue penetrating the renal cortex, the border of which contains numerous areas of round cell infiltration.

Scheele[16] quotes Lichtenstern as having reported several cases to the German Urologic Congress (1919) in which there were chronic inflammatory changes in the fibrous capsule explaining chronic unilateral pain and which he cured by decapsulation of the kidney.

CASE 1.—A man, aged 34, seen, Jan. 6, 1923, complained of a dull aching pain persistent in the right lumbar region for the past eight months. There was no other complaint. The pain was continuous, did not radiate to the abdomen, groin or thigh and was aggravated by exercise and the drinking of large quantities of fluid. Fifteen years prior to this examination he had a right perinephric abscess following an acute tonsillitis. The abscess was drained, and the patient had no illness of any kind until the onset of this pain, eight months before I saw him. There had never been any unusual urinary symptoms. Tonsillectomy followed the previous operation. Six months before admission he had been subjected to a cystoscopic examination and ureteral catheterization, and pyelograms were made. Following this examination he was told that the urinary organs were normal.

General physical examination, including complete gastrointestinal studies, showed no abnormality except a slight tenderness in the right costovertebral angle. Urine and blood analyses were normal.

January 7, cystoscopic examination revealed a normal bladder, and both ureters were catheterized for a distance of 30 cm. Twenty cubic centimeters of urine obtained in fifteen minutes from the left kidney had a specific gravity of 1.018; 12 c.c. of urine during the same period from the right kidney had a specific gravity of 1.006. Cultures from each kidney were negative. The urine from the left kidney showed two and one-half times the amount of urea and chlorids obtained from the right.

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[13] Thévenot: Lyon chir. **10**: 23, 1913.

[14] Nicolich: Jour. d'Urol. **4**: 70, 1913.

[15] Ockerblad, N. F.: Perinephritic Abscess as a Urologic Problem, J. A. M. A. **83**: 2074 (Dec. 27) 1924.

[16] Scheele, K.: Klin. Wchnschr. **3**: 841 (May 6) 1924.

Phenolsulphonephthalein injected intravenously appeared from the left kidney in three minutes and from the right in six minutes. Sixteen per cent. of the dye was excreted from the left kidney in fifteen minutes; 8 per cent. from the right.

Ureteropyelograms were clear and were normal in every respect. The kidney shadows were normal in outline.

Divided urine functions were rechecked, January 10 and 16, and approximately the same relative discrepancy was found. At operation through lumbar incision, January 17, the kidney was so adherent to the perirenal tissues, posterior peritoneum and diaphragm that it could not be delivered until the hardened thickened capsule was incised and dissected free from the exposed cortical tissue. In some areas it was necessary to remove small portions of the cortex to continue the enucleation. When this was completed the kidney was delivered, and the pelvis and upper ureter were freed from surrounding adherent hard fatty tissue. The kidney was then restored to its usual position.

Following operation there was complete relief from pain, and June 15, 1924, careful divided functions gave normal and equal excretion on both sides. These findings were corroborated, Jan. 10, 1925.

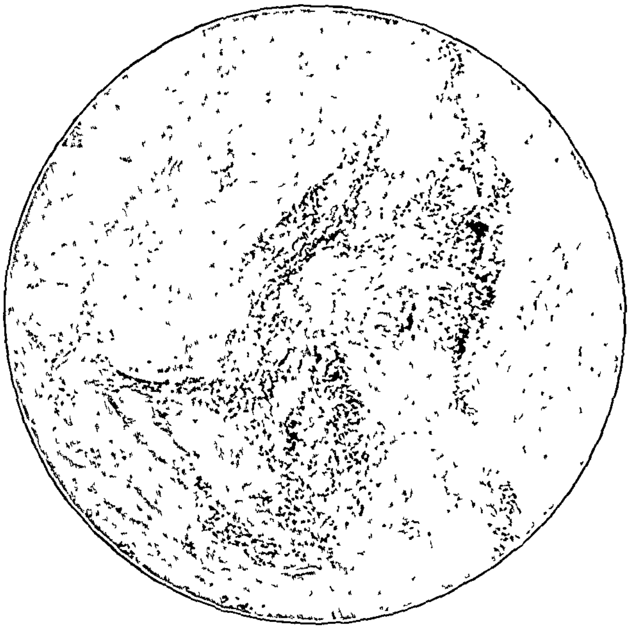

Fig 3 (Case 2).—Sclerotic, fibrous perirenal scar There is no evidence of contained fat in the connective tissue, although there are many areas of round cell infiltration.

Sections of the cicatricial shell showed it to be 3.5 mm. thick and composed of closely arranged fibrous tissue, very hard on incision and with no gross appearance of contained fat (Fig. 1). Microscopically, the connective tissue contained many areas of round cell infiltration with a few closely enmeshed areas of fatty tissue. In some areas the renal cortex was intimately adherent to the fibrous tissue, which penetrated the renal tissue for a distance of 1 mm. (Fig. 2). Along this border there were numerous areas of round cell infiltration.

Case 2.—A man, aged 24, presented himself, Feb. 12, 1923, complaining of a continuous pain in the right lumbar region for the past three years. The discomfort had gradually increased until the patient could no longer endure it The pain was localized, did not radiate and was aggravated by exercise and the drinking of large quantities of fluid Occasionally he was obliged to urinate once at night; otherwise there had never been any urinary symptoms.

Six years before he had a right perinephric abscess without apparent focus for the infection This was drained, and there was no pain for three years. Several roentgenograms failed to show evidence of renal calculus, and since repeated urinalyses were reported normal, he was told by several physicians that he had no kidney disease.

Since he was seen immediately after the patient in the case previously reported, and because his history and complaint were so similar, he was subjected to a careful urologic examination, February 13.

Cystoscopy showed a normal bladder. Both ureters were catheterized 30 cm. Cultures from each kidney were negative. No acid fast bacilli were found; 30 c.c. of urine from the left kidney had a specific gravity of 1.020, and 18 c.c. from the right showed a specific gravity of 1.005. The urine from the left kidney contained twice the quantity of urea and chlorids obtained from the right.

Phenolsulphonephthalein injected intravenously appeared in four minutes from the left and in eight minutes from the right. Twenty per cent. of the dye was excreted from the left kidney in fifteen minutes and only 8 per cent. from the right

Ureteropyelograms were normal, as were the kidney outlines.

Divided urine functions were taken again, February 15 and 18, with the same findings. February 16, the patient was made to drink 1,000 c c. in a two hour period. For three hours subsequent to this the patient had such severe right renal pain that morphin was required to comfort him.

At operation, February 19, the kidney was delivered with some difficulty and was found completely surrounded by a hard, dense, scarlike shell. This was removed by scalpel dissection and was so intimately adherent that in some areas there were portions of cortical tissue cut away with the cicatrix. The ureter and pelvis were not surrounded by hardened fat as in the previous case.

Following operation there was complete cessation of pain, and Oct. 3, 1923, and Dec. 10, 1924, the function of each kidney was found to be normal.

Sections of small portions of the cicatricial capsule showed it to be 2.5 mm. thick and grossly appeared to be hard, fibrous tissue. There was no evidence of retained fat in the connective tissue meshes, although there were many areas of round cell infiltration (Fig. 3).

SUMMARY

1. Perirenal sclerosis, better called "chronic cicatrizing perinephritis," may evidence itself at a considerable period after an acute perirenal infection.
2. The only symptoms may be a persistent pain in the affected kidney and a deficiency of urinary elimination from this organ.
3. Nephrolysis, or decapsulation, relieved all pain in the two patients under discussion, and there was ultimately a complete return to normal function on the affected side.
4. The pathology of this condition represents a replacement of the fibrous and fatty capsules of the kidney by a dense, fibrous cicatricial shell which contains evidence of a persistent low grade interstitial infection. The cicatricial contraction about an otherwise apparently normal kidney must have been the cause of pain and lowered renal function in these two cases.

30 North Michigan Avenue.

Surgical Treatment of Habitual Criminals.—It has been shown by statistics collected in the state of Indiana that 100 families have committed more than one half of the crimes done to native-born citizens during the past generation. But this is not all, for the offspring of respectable members of society are constantly exposed to the harmful influence of contact with these degenerate classes and their offspring. Moreover, the lives of the offspring of these unfortunate classes are full of trouble and sorrow from their beginning to their miserable end, and few if any members of these classes do not regret the fact that they were born. . . . If, then, it is possible, by the surgical treatment of these cases, to reduce the number of their progeny, it seems reasonable to advocate this surgical method so that society can be protected against at least a part of the harm it now suffers without harming the individuals who receive this surgical treatment.—Ochsner, A. J.: *Ann. Surg.* **82**:321 (Sept.) 1925.

BLADDER REFLUX

A CLINICAL AND EXPERIMENTAL STUDY *

DANIEL N. EISENDRATH, M.D.
HARRY KATZ, M.D.
AND
JULIUS M. GLASSER, M.D.
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Under normal conditions, the backflow of bladder contents into the upper urinary tract is prevented by a mechanism at the ureterovesical junction which acts like a sphincter. When, as the result of congenital or acquired conditions, this mechanism fails to act, urine from the bladder flows back (reflux) into the ureter and renal pelvis. A recent case has impressed on us the necessity of keeping in mind the possibility of such a reflux in cases of severe renal infection:

A man, aged 50, was referred, on account of a marked urosepsis, by Dr. Vance Rawson. In addition to the history of a spinal syphilis of ten years' standing, complete retention of urine had existed for several weeks. No relief of the infection being obtained from an indwelling catheter, it was deemed advisable to ascertain whether some form of mechanical obstruction at the vesical neck was present. Cystoscopy revealed only marked trabeculization and gaping ureteral orifices. A cystogram (Fig. 1 *A*) showed a unilateral (left) reflux. The renal infection, which later (Fig. 1 *B*) proved to be bilateral, yielded rapidly to the use of the indwelling ureteral catheter, combined with vigorous antisyphilitic treatment. The bladder muscle regained its tone, and the ureterovesical mechanism now functions and cystograms made twelve months later (Fig. 1 *C*) fail to show reflux, and the evidences of the renal infection have entirely disappeared.

In a second, similar case, the reflux was bilateral (Fig. 2), and cystoscopy revealed such marked gaping of the right ureteral orifice that it was at first considered to be the opening of a diverticulum (Fig. 3). This free communication of the upper and lower urinary tracts had existed, however, so long that treatment was of no avail.

Summary of Clinical Observations

Group	Condition	Number of Cases	Reflux in	No Reflux
1	Normal	10	.	10
2	Pregnancy	41	.	41
3	Nonobstructive bladder and prostate lesions	10	3	7
4	Nonoperated bladder neck obstructions	12	.	12
5	Vesical and bladder neck lesions after operation	6	.	6
6	Renal and ureteral lesions before operation	8	2	6
7	Nephrectomy cases after operation	4	.	4
	Totals	91	5 *	86 †

* Equals 5 4 per cent.
† Equals 94.6 per cent.

CLINICAL AND EXPERIMENTAL STUDY OF REFLUX

With the cooperation of Dr. R. A. Arens, roentgenologist to the Michael Reese Hospital, we began a study as to the frequency of reflux under normal and pathologic conditions. Our results are shown in the accompanying table.

The technic in all of these clinical cases was practically the same. The first exposure was made after 5 ounces (150 c.c.) of a 25 per cent. solution of sodium bromid had been injected, and a second one after an additional 3 ounces (90 c.c.). The majority were able to tolerate the larger quantity. Group 1 includes ten patients admitted to the general surgical services for conditions such as fractures of the extremities, or goiter, which were not accompanied by symptoms or demonstrable lesions referable to the urinary tract. In none of these was a reflux found.

Group 2 includes thirty-one cystograms of pregnancy cases previously made by Dr. Julius E. Lackner of the gynecologic department of the Michael Reese Hospital, and ten more recent ones in collaboration with us. The majority were in women in the fourth or fifth, a few in the latter months, of pregnancy. The primary object of the cystography in these cases was to study displacement of the bladder in pregnancy. It also enabled us to observe whether reflux occurred often enough to be a factor in pyelitis of pregnancy. That it does not do so frequently is shown by the negative results in the forty-one cases.

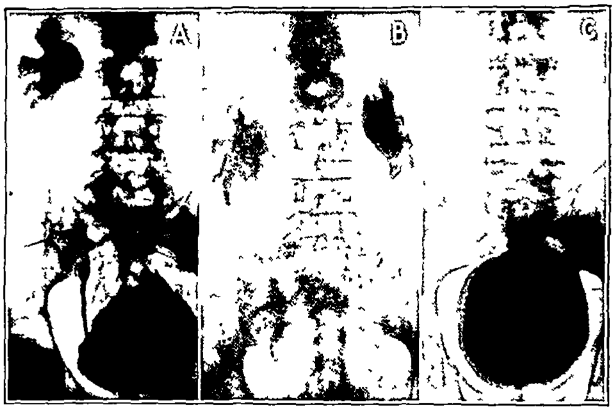

Fig. 1.—Three clinical stages of first case cited: *A*, unilateral reflux complicating atony of bladder; *B*, bilateral hydronephrosis (infected) pyelograms four months after reflux was recognized (*A*); *C*, cystogram one year after observation of reflux seen at *A*, with absence of reflux.

In Group 3 we found a relatively larger percentage of reflux than in any other. The three positive cases were (*a*) in the case cited at beginning of this paper; (*b*) in a case of senile atony of the female bladder complicated by diverticula, and (*c*) in a woman who had tertiary syphilis (Fig. 5 *A*), a well marked cystitis and typical "rigid" ureteral orifices; i. e., did not contract during cystoscopic observation.

In Group 4, one would expect to find a fairly high proportion of reflux. Our negative findings in twelve cases (prostatic adenoma, bladder neck contracture, cancer of prostate, vesical calculi, multiple diverticula, urethral stricture) correspond with those of Bumpus,[1] who found reflux in only 5 per cent. of cystograms from 527 adenomatous prostates.

In Group 5, prostatectomy had been performed in five of the six cases, from two months to two years before. In the other patient we failed to find reflux, although a transvescial diathermy for papillary carcinoma and later a prostatectomy had been done.

Group 6 includes cases of renal infection (nontuberculous and tuberculous), renal and ureteral calculi, etc., with accompanying vesical lesions. Reflux was observed in a case of very advanced bilateral nontuberculous renal infection (Figs. 2 and 3) and one of bilateral renal tuberculosis (Fig. 5 *B*), with apparently few bladder or ureteral orifice changes. The remaining cases (six) were negative, including one of well marked bilateral pyelitis in a girl, aged 8.

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* From the urologic departments of the Michael Reese and Chicago Memorial hospitals.

* Read before the Section on Urology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Bumpus, H. C., Jr.: J. Urol. **12**: 341 (Oct.) 1924.

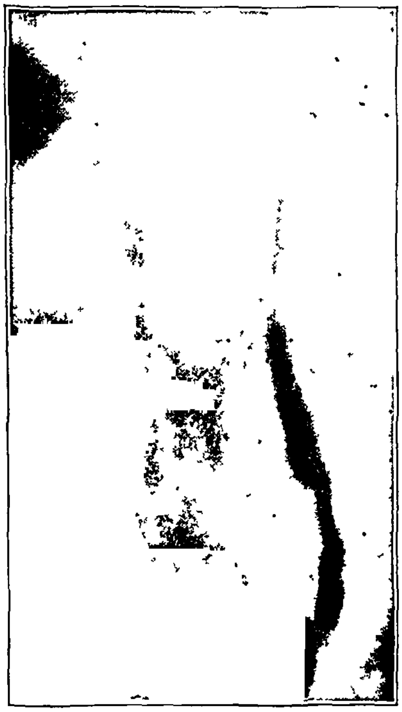

Fig. 2.—Bilateral reflux in case of advanced renal infection (bilateral) of many years' duration, this is to be compared with cystoscopic view of same case (Fig. 3).

We made cystograms in Group 7 because, in a number of recent articles, there are reports of reflux into the ureteral stump after nephrectomy and especially in tuberculosis, into the ureter of the remaining kidney. We failed to find reflux in four cases in which nephrectomy was done for severe nontuberculous renal infection complicating ureteral calculi, or for stricture and hydronephrosis.

ANIMAL AND CADAVER EXPERIMENTS

The question of reflux in rabbits has been so exhaustively studied by Graves and Davidoff,[2] as well as previous investigators, that only a sufficient number of experiments were made to corroborate the frequency with which reflux occurs in rabbits when only relatively small amounts of distending medium and low pressure are employed. We obtained positive results in two of three rabbits (Fig. 6), in both of them unilateral. Graves and Davidoff obtained a reflux in 86.8 per cent. of seventy-six rabbits, and other investigators similar percentages. There have been a much smaller number of reflux experiments on dogs. We have begun a series, but can report only two at present. In one (a large animal) the result was negative, while in a second, much smaller dog, a unilateral reflux appeared when 30 c.c. was injected at 140 mm. of mercury pressure, and a bilateral reflux when this was raised to 40 and 160, respectively. A single cadaver experiment was made. Even when the bladder was tensely filled with the opaque medium, so that the intravesical tension was very high, no sign of reflux appeared, showing that, even independent of any nerve influence, the mechanism at the ureterovesical orifice is effective against reflux.

THEORIES AS TO CAUSATION OF REFLUX

There is still much difference of opinion. Gayet believes that all cases are due to a congenital inability of the lower end of the ureter to oppose the reflux when the bladder wall contracts. This view applies to comparatively few cases, in our opinion. Some favor the theory that a tonic contraction of the bladder on its contents is able to open the ureteral orifices. This does not explain all cases, as will be evident when one recalls the frequency with which reflux occurs when there is a neurogenic or purely muscular atony of the bladder and ureteral walls, as seen in myelitis, spinal syphilis (Fig. 1) and tabes. The negative test for reflux (Fig. 1 *C*) six months and one year, respectively, after appropriate local and general treatment in our first case, would speak in favor of atony of the vesical and ureteral musculature as a not infrequent, and yet remediable, cause of reflex. That either acute or chronic inflammatory changes in the vesical or ureteral wall which interfere with the proper closure of one or both ureteral orifices play a very important part cannot be denied, because reflux is very frequent under these conditions (Groups 3 and 6).

CLINICAL IMPORTANCE AND GROUPING OF REFLUX CASES

There are few statistics, so far, as to the frequency of reflux. In a study of 1,036 cystograms from the Mayo Clinic, Bumpus[1] found reflux in eighty-nine, or 8.59 per cent. It was never found in the normal bladder except in children. The latter corroborates the finding of Kretschmer, who observed reflux in three of ten children under anesthesia.

We believe, from our own work, that reflux occurs so rarely in normal persons as to be a negligible clinical factor. The importance, however, of this comparatively recently known phenomenon, under pathologic conditions, cannot be underestimated. That it plays a part in the spread of infection from the bladder to the kidneys, on the one hand, and from a diseased kidney of one side to the normal opposite one can no longer be denied. In renal tuberculosis, for example, the finding of tubercle bacilli in the urine from both kidneys may lead to an erroneous diagnosis of bilateral disease, unless one has made a cystogram to ascertain whether a reflux on the supposedly normal side is responsible for the findings. Again, the use of irritating solutions

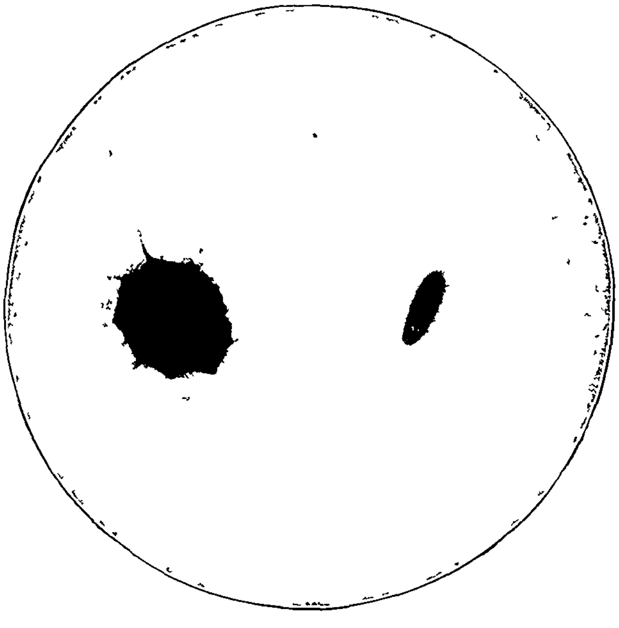

Fig. 3.—Cystoscopic view in case of bilateral renal (advanced) infection complicated by bilateral reflux; gaping of right ureteral orifice resembles appearance of diverticulum

or of too much force in the irrigation of an infected bladder may be followed by acute exacerbations of a preexisting pyelonephritis in the form of chills, fever, etc. Reflux explains why so many cases of pyelitis resist treatment as long as the bladder condition persists.

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[2] Graves, R. C., and Davidoff, L. M.: J. Urol. **10**: 185 (Sept.) 1923; **12**: 93 (Aug.) 1924.

Helmholtz is of the opinion that reflux is of more importance in the etiology of renal infections in early life than any other factor. For clinical purposes, we may divide reflux into the following groups:

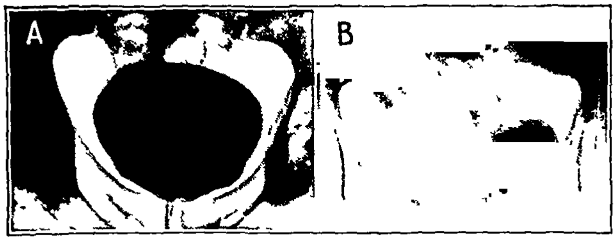

Fig 4 —*A*, cystogram of normal person showing absence of reflux, *B*, cystogram in fifth month of pregnancy; compression of bladder vertex and absence of reflux may be noted

1. Congenital.
2. In severe acute cystitis, especially after introduction of caustic fluids (cases of Gayet, Scheele).
3. In chronic nontuberculous infections of the entire urinary tract.
4. In genito-urinary tuberculosis.
5. In mechanical obstruction at the bladder outlet.
6. Cases of neurologic origin (spinal injuries, myelitis, spinal syphilis, tabes).

The recognition of reflux without a cystogram is very difficult. One can suspect such a condition if there is pain over one or both kidneys after micturition, or if the ureteral orifices appear rigid or gape considerably (Fig. 3). If signs of acute pyelitis appear after irritating solutions have been employed for vesical lavage, or too much force is used in injecting them, the possibility of a reflux being responsible should be borne in mind.

Cystography is a simple and harmless procedure and will probably soon become a portion of the routine examination of urologic cases and add much to our knowledge of reflux.

SUMMARY AND CONCLUSIONS

1. By bladder reflux is to be understood the regurgitation (backflow) of bladder contents into the ureters and renal pelves.

2. The condition may be congenital or develop in postnatal life. That it is not a permanent affection is shown by the first case reported, in which a marked reflux complicating atony of the bladder and due to spinal syphilis entirely disappeared after appropriate local and general treatment.

3. Reflux plays an important part in carrying the infection from the lower to the upper urinary tract and explains the recurrence and resistance to treatment in such cases.

4. It may lead to an erroneous diagnosis of bilateral renal tuberculosis because it is a frequent complication of that disease.

5. It is extremely rare in normal persons and during pregnancy. Acute and chronic cystitis favor it because of changes in the lower ureter preventing proper closure of the orifice on one or both sides.

6. In ninety-one cases including normal persons, pregnancies and various vesical and renal conditions, reflux was found in only five, or 5.4 per cent., most frequently in infections of the bladder and kidney, both tuberculous and nontuberculous. Obstruction at the vesical neck is a comparatively rare cause of reflux.

7. There is still much difference of opinion as to the reason why the mechanism at the ureterovesical junction, which normally opposes the reflux of bladder contents, should fail to function. Some hold that a hypertonic vesical musculature forces the ureteral orifices open. Some believe that a congenital insufficiency will explain all cases. A third group holds that changes in the wall of the lowermost portion of the ureter from lack of innervation or disease prevent the proper closure of the orifices. One must concede that all three of these may coexist, or even, acting alone, be sufficient cause for the phenomenon.

Hotel Belmont—3565 Pine Grove Avenue—29 East Madison Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. O'CONOR AND OF DRS. EISENDRATH, KATZ AND GLASSER

Dr. R. C. Graves, Boston: Regurgitation into the ureters has interested me intensively for several years. The important bearing of reflux on the problem of ascending urinary tract infection led us into investigations which might prove or disprove the occurrence of this phenomenon. The evidence to date, and it has been strongly confirmatory evidence, has been chiefly experimental. We now need every possible clinical contribution that may throw light on the problem and enable us to value better the laboratory facts. In the first place, I am impressed by the need for exact definition of reflux. The word regurgitation denotes in this case an active process in which the bladder, actively contracting in the presence of obstruction, forces its fluid back into the ureters instead of through the normal outlet. Furthermore, to be significant, reflux must occur before the normal ureterovesical mechanism has been broken down. There is no question involved in the familiar passive back-wash from bladder to kidney through patulous ureters which have been dilated as the result of chronic disease. In such cases the cystograms

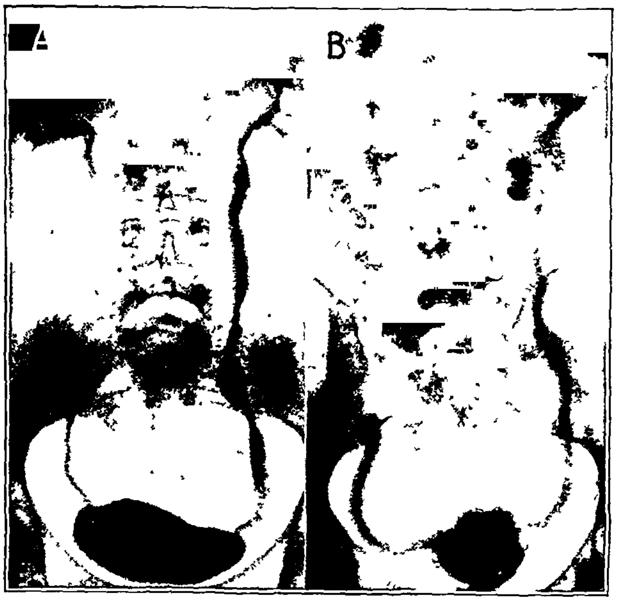

Fig 5 —*A*, bilateral reflux in woman aged 30, with tertiary syphilis; *B*, bilateral reflux in man, aged 30, with bilateral renal tuberculosis.

will of course show ureteral filling. The experimental problem has involved the possibility of reflux through intact orifices, and the clinical question, if there is to be any analogy, must be approached on the same basis. I think further, that it is unsafe to draw clinical conclusions on the basis of cystograms alone. Regurgitation may be very fleeting, and only a small amount of bladder fluid may escape into the ureters. The film or two films account for but a small fraction of the total time of bladder filling, and absence of reflux in the plate is not proof that it has not occurred, or that it might not occur with further distention. Again, may I suggest that we should be more concerned in this study with pressures within the bladder. Regurgitation occurs in the presence of active pressure produced by active sustained resistance to distention on the part of the bladder musculature. Cadaver experiments are futile. It is necessary to know much more than the amount of fluid injected before we can accept a given case as adequate evidence for or against reflux. In our laboratory study, which was carried out purely as a basis for the clinical study of regurgitation, we observed reflux in more than 80 per cent. of a large series of normal rabbits under as nearly normal conditions as experimentation will permit. There was no disturbance of innervation in these cases. In the normal cat and dog groups, reflux was observed in 62 per cent of the former and 27 per cent. of the latter. The lesser incidence in dogs is not due to difference in anatomy but rather to different physiologic reaction to distention on the part of the bladder muscle in these animals. There can be no question concerning the experimental occurrence of regurgitation into normal ureters in normal animals. The clinical application of this evidence is still to be completed; but I am convinced, on the basis of our studies, that reflux occurs in the human being in the presence of vesical neck obstruction.

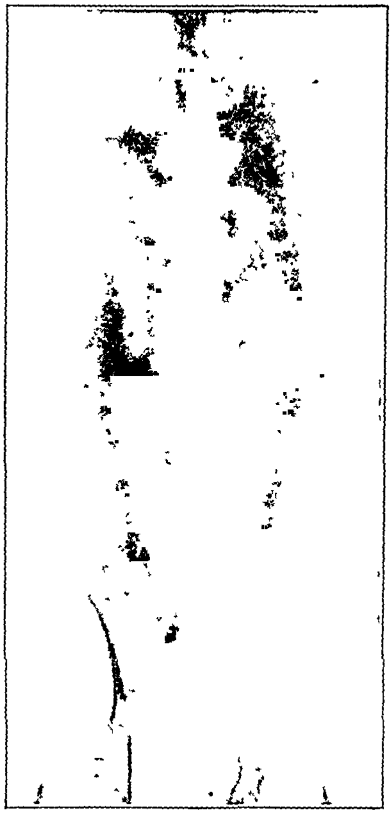

Fig 6—Unilateral reflux in rabbit.

Dr. Paul W. Aschner, New York: In cortical abscess and carbuncle of the kidney, absorption of the perirenal fat is observed at the time we operate It is a good plan not only to open and drain the particular abscess we are dealing with, but also to decapsulate the kidney to favor the breaking through of other abscesses that may be present in the parenchyma. The paper of Dr. Eisendrath is of much interest. A number of years ago the condition of ureterohydronephrosis in children was brought to our attention and studied in Dr. Beer's clinic. Cystograms showed huge dilated ureters (bladder reflux or regurgitation). Some cases treated on the basis of contracture of the vesical neck have had an excellent postoperative result. I think it will be instructive to get these children back to see whether the reflux has disappeared. The importance of possible reflux during cystoscopic examination in cases of renal tuberculosis cannot be overemphasized, for undoubtedly cases of bilateral involvement reported in the literature as cured after nephrectomy on the worse side were errors in diagnosis occasioned by reflux. It is most important to determine that no reflux is present when collecting ureteral specimens. We should make it a practice to keep the bladder continuously empty during this procedure. A good way to determine clinically whether there is a reflux or not is to put an ounce or two of indigocarmin into the bladder continuing the ureteral drainage. If there is no dye in the ureteral specimens, one may be sure that there has been no reflux. I have seen reflux follow nephrectomy. On one occasion the patient was reported to be voiding no urine at all, and we found that the ureter stump had opened and the urine was passing out of the lumbar wound. We have seen reflux in children and in adults with atonic and incompetent bladders. Whether it occurs after prostatectomy is important. Some patients after prostatectomy will begin to void small amounts, will suddenly stop draining through the wound, and will then void many ounces at one time. This may be immediately followed by chill and fever and renal tenderness. I think it is possible when we enucleate the adenomatous prostate to liberate the interureteral ridge and trigon, separating it from its normal connections with the rest of the bladder so that reflux can occur. Recently I treated a man with an old spinal cord injury. As soon as 5 or 6 ounces of water had been introduced into the bladder by the cystoscope, he complained of pain in both kidney regions. We did not make a cystogram because we found he had typhoid and did not wish to do anything more for the present. In a man with contracture of the vesical neck, whose right kidney has been removed, fluoroscopy was done while the iodid was being injected. After 3 ounces had entered the bladder, the latter was seen to contract and the left ureter suddenly filled with the solution.

Dr. Herman L. Kretschmer, Chicago: Dr. O'Conor's paper calls attention to the fact that the persistence of pain after draining a perinephritic abscess may be due to a perirenal sclerosis and is not, as is often assumed, due to adhesions. It seems to me that he has shown rather graphically that the pain is due to something more than adhesions. Patients with a perinephritic abscess may have a definite fibrosis around the kidney, and the persistence of pain after a perinephritic abscess has been drained, is highly suggestive of perirenal fibrosis or sclerosis. On the other hand, in the cases in which there is no history of a perinephritic abscess it is difficult to make this diagnosis. Perhaps, too, we do not think of the possibility of perirenal sclerosis. The results of the examinations and functional tests often do not lend much aid in making the diagnosis. Dr. Aschner called attention to the enormous amount of perirenal sclerosis that is found with so-called carbuncle of the kidney, and I believe that in this lesion one finds the greatest amount of perirenal fibrosis. Regarding Dr. Eisendrath's paper on regurgitation: This always opens up a very interesting subject on the physiology of the ureter. Lewin and Goldschmidt in Germany, and Guyon and Courtade in France reported on this work many years ago. And in this country O'Conor and Graves have published their researches recently. That reflux is a possibility, I was able to prove in 1916. I have seen reflux in all sorts of pathologic conditions, as Dr. Eisendrath has mentioned. I saw it once in a case of abscess of the prostate, and several times in patients who had benign papillomas of the bladder. Dr. Eisendrath mentioned the fact that reflux is not constant, and I found it to be so. If it is not present at one time it does not mean that it never occurs. Regarding reflux in renal tuberculosis, I, too, have seen cases in which all the urine was voided from the side from which a tuberculous kidney had been removed; that is, through the wound in the loin. Reflux has served us well in two or three instances in which we were unable to find one of the two ureters at cystoscopic examination in cases of renal tuberculosis. We made cystograms and found regurgitation of fluid on both sides with pathologic changes present on both sides. Dr. Young, as we all know, carried out his experiments under hydrostatic pressure, injecting fluid into the bladder. He tried to get it to back up the ureters but could not get it to do so. This work was done on cadavers. I think this entire subject should be considered from two standpoints: first, as a congenital insufficiency of the ureterovesical valve, not a case of reflux, and second, when ureterovesical valves are perfectly normal and fluid regurgitates up the ureter.

Dr. Ralph L. Dourmashkin, New York: The amount of the opaque solution that Dr. Eisendrath uses in doing his cystograms, I believe, is too excessive. There is always a potential danger in doing a double pyelogram, and those who are against doing it at the same sitting will agree with me. I know of one case in which death followed a cystography. The patient was a boy, aged 5. The house physician was instructed to make a cystogram. He injected 4 or 5 ounces of the opaque solution, and the boy died on the following day. The roentgen ray showed a bilateral reflux into the pelves of the kidneys. I think it is possible to get a perfect outline of the bladder and even a reflux with as little as from 50 to 75 c.c. of the solution.

Dr. Robert H. Herbst, Chicago: I have seen two cases that illustrate the part played by the muscular coat of the bladder in both the prevention and the production of reflux. The first case was one of active incontinence with a contracted bladder and marked hypertrophy of the bladder wall. There was an obstruction in the left ureter about 10 cm. from the orifice. With the patient on the fluoroscopic table and contrast fluid injected into the left ureteral catheter, the fluid could be seen flowing back into the bladder, when it would be promptly forced up the right ureter to the kidney pelvis. The second case was one of fistula between the sigmoid and the bladder. Contrast fluid injected into the bladder could not be forced into the bowel because of the action of the muscular coat of the bladder, closing the vesical end of the fistula. This is found in nearly all cases of fistula between bowel and bladder except those located on the posterior wall near the neck. Under normal conditions the muscular coat plays an important rôle in the prevention of reflux, and where the innervation is disturbed it may have much to do in the production of it.

Dr. Vincent J. O'Conor, Chicago: The points that I wished to bring out in this paper regarding chronic, cicatrizing perirenal sclerosis were, first, that the process probably occurs more frequently than is generally recognized. I know that in the past I have seen patients with a so-called nephralgia who had been classified as neurotics, in whom nothing was found on careful examination and who had been dismissed without treatment. Secondly, I wish to stress the fact that conservatism in these cases, when they are recognized early, is worth while. The removal of the constricting shell from a kidney of only one-half function will permit a return to practically normal function after a time. Regarding the passage of material from the bladder and ureters to the kidney; there is a great deal of confusion on the part of some men regarding this phenomenon. There are two distinct mechanisms which produce regurgitation and reflux. Under the stimulation of Dr. Quinby we studied this condition experimentally, and Dr. Graves has elaborated on these findings by further experimental and clinical work. Reflux from bladder to ureter is not new nor is the phenomenon particularly interesting. It is purely the passage of fluid from the bladder to the upper urinary tract by direct continuity. This is effected by loss of bladder and ureteral muscle tone as occurs in spinal cord disease or injury or prolonged back pressure from bladder neck obstruction. In addition, the stiffening of these structures by chronic infection, notably tuberculosis, results in reflux. Regurgitation is the term used to denote the passage of bladder content to ureter or kidney when the bladder and ureteral muscle tone is obviously normal. The relationship of this mechanism to ascending renal infection is the only point of interest in this work. The cases cited by Dr. Eisendrath are those of reflux and not regurgitation, and do not bring out any points of new clinical interest. In my opinion, antisyphilitic treatment brought about a return to normal muscle tone, which in turn prevented reflux in the cases cited by him. We frequently see the same result in eliminating residual urine in the bladder by active systemic treatment when all local treatment has been avoided.

Dr. Daniel N. Eisendrath, Chicago: I do not feel that one should speak of reflux when ureteral catheters are in situ. In reply to the point raised by Dr. O'Conor regarding the inconstant occurrence of reflux, I would say that reflux was absent six and again twelve months after it had been first observed in the case in which a spinal syphilis led to bladder atony. From a clinical standpoint one cannot differentiate reflux from regurgitation, as Drs. O'Conor and Graves suggest. They suggest that the term reflux be limited to those cases in which the ureteral orifices are intact and the term regurgitation be applied to those in which they gape so that there is a free communication between the bladder and ureter (also renal pelvis). We have not seen any difference in the phenomenon in cases in which the ureters were apparently intact so far as cystoscopy revealed from the reflux in cases in which the ureters gaped widely. From a practical standpoint we are concerned with the question of how we can gain control of the renal infection through our efforts to combat the bladder condition whether the latter be of local or systemic (neurogenic) origin.

ROENTGEN-RAY DIAGNOSIS AND TREATMENT OF THYMOMA

REPORT OF TWO CASES *

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AND
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To differentiate and determine the source of origin of primary mediastinal neoplasms and other mediastinal masses is notoriously difficult ante mortem, and is at times impossible even at necropsy. This is particularly true both from a roentgenologic and from a clinical standpoint when the patient is first seen after a neoplasm has extensively invaded surrounding structures or pleural effusion has occurred. In the latter instance, the character of the exudate may afford a clue as to the nature of the disease, but its source of origin is apt to remain shrouded in obscurity.

Tumors of the thymus are undoubtedly rare, but their occurrence is probably more common than the reports in the literature would indicate. They are rarely recognized as such during life. If the presence of Hassall's corpuscles is taken as a criterion for establishing the thymic origin of a tumor, even some of the reported postmortem diagnoses are open to question.

The cases reported here present roentgenologic pictures sufficiently characteristic to establish a diagnosis of thymoma with reasonable certainty, and are presented mainly for the purpose of calling attention to these characteristics, and incidentally to illustrate the effects of roentgen rays on this type of tumor.

REPORT OF CASES

Case 1.—Mrs. W., aged 39, white, was referred for roentgen-ray examination, Sept. 2, 1924, by Dr. Howard Fletcher, who suspected the presence of a mediastinal growth. Her history, prior to the beginning of the present illness six months before, was unimportant. At that time she began to have difficulty in breathing, followed later by swelling of the neck, face and hands, and pruritus about the upper part of the thorax. The sense of suffocation and also the swelling were most marked when she was recumbent, and were partially relieved on her assuming an erect posture. The symptoms had become progressively more pronounced, but she did not think she had lost weight. At the time she presented herself, her breathing was of the asthmatic type, and there was marked swelling of the face, neck and upper extremities, together with marked engorgement of the veins, indicative of pressure on the vena cava. There was a marked increase in the mediastinal dulness. Roentgen-ray examination showed the presence of a mass in the anterior mediastinum extending from the third to the eleventh dorsal vertebra and having a transverse diameter of 8½ inches. It was in close contact with the anterior thoracic wall and was nonpulsating. It was circular and extended about an equal distance to either side of the midline. When viewed laterally it was seen to be flattened anteroposteriorly, and apparently not more than an inch thick. The borders were sharply defined and the shape reminded one of a generous sized pancake. The heart and great vessels appeared normal, and there was no evidence that the growth invaded the lungs or pleurae.

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

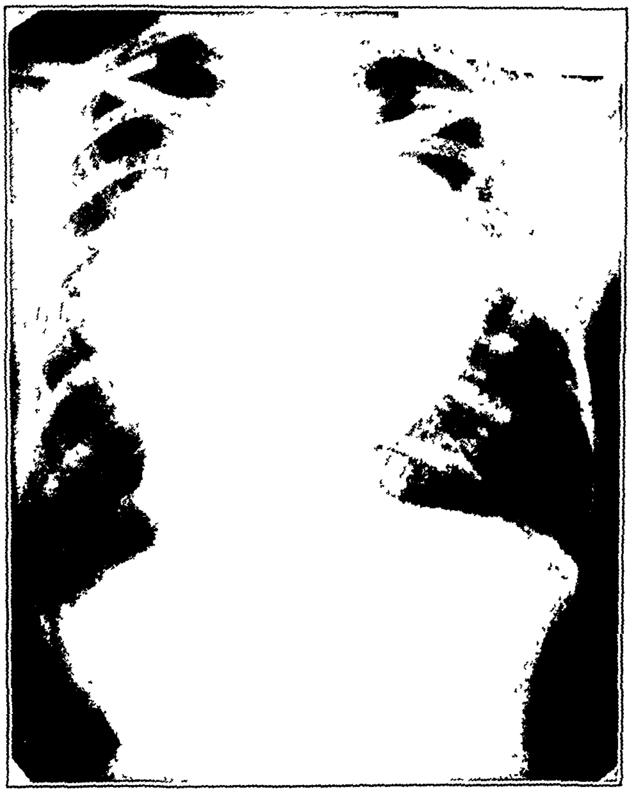

Fig. 1 (Case 1).—Roentgen-ray appearance, Aug. 26, 1924.

Roentgen-ray therapy was begun immediately, and a total of 800 milliampere minutes at 200,000 volts and 50 cm. distance with 0 5 mm. copper filtration was administered in the course of four days. Half this dose was administered through the front of the chest and half through the back.

In two weeks, practically all symptoms had disappeared. The swelling and varicosity of the veins had vanished and the mediastinal mass was reduced about 50 per cent in size. The mass continued to recede, and in two months the chest appeared practically normal. She received further roentgen-ray treatments of the chest in October and December, 1924.

She remained in fairly good condition until January, 1925, when she began to have sore throat. The left fauces became edematous, and ulceration involving the anterior pillar and tonsil rapidly supervened. The ulcer had ragged edges and a grayish necrotic base. The appearance was not unlike that of a primary carcinoma of the tonsil, but it was regarded as being most likely a counterpart of the mediastinal growth. Smears for Vincent's angina and the Wassermann reaction were both negative, and the differential blood count showed nothing characteristic or suggestive. (In this connection it is noteworthy that Friedlander and Foot[1] report a case of malignant small celled thymoma with acute lymphoid leukemia, in which a gangrenous stomatitis with extension to the tonsil occurred.)

At about this time the mediastinal mass reappeared, but had not reached a sufficient size to cause pressure symptoms. Radium needles were implanted in the tonsil, and further roentgen-ray treatment was given over the chest. The throat lesion has entirely disappeared and the mediastinal mass has again undergone marked regression, but has not entirely disappeared. The outlook for a permanent recovery is not considered very encouraging.

Case 2.—E., a white man, aged 61, consulted us, Dec. 5, 1924, with no facts in his previous history that seemed to have any bearing on his present complaints. For four or five years he had had some dyspnea on exertion, but it was very slight and he had paid no attention to it. In 1923, he was operated on for a benign hypertrophy of the prostate from which he made a satisfactory recovery. He had led an active life and considered his health to have been good. About two months before he began to have dull aching pains in his left chest and in his arms. The pain was worse in the left arm than in the right, and the pain in the chest was located above and to the left of the precordium. Dyspnea had increased. The pain in the chest and arms was aggravated by exertion. Two weeks before he had consulted Dr. Merrill M. Myers of Des Moines, Iowa, who made a general diagnostic survey, and at that time a roentgen-ray examination by Dr. Thomas A. Burcham disclosed the presence of a mediastinal mass which he considered to be either an aneurysm or a new growth. A few days later he was examined at the Mayo Clinic, where a diagnosis of a large malignant mediastinal tumor was made. Aside from the roentgen-ray disclosure of a mediastinal mass, other laboratory findings and the physical examination were essentially negative.

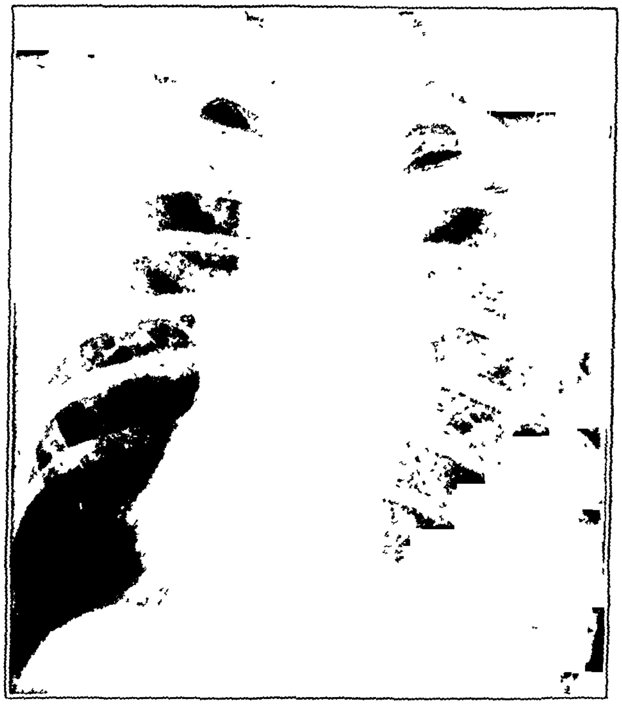

Fig. 2 (Case 1).—Roentgen-ray appearance, Dec. 12, 1924: almost complete disappearance of the mediastinal mass.

The roentgen-ray picture as it presented itself to us was essentially the same as that of Case 1, except that the growth was somewhat smaller. There was a circular, sharply defined flattened mass in the anterior mediastinum, in intimate relation with the anterior wall of the thorax, which did not pulsate and which did not appear to invade the surrounding organs.

Roentgen-ray treatment was begun at once, with an exposure of 800 milliampere minutes made through the front of the chest and a like amount through the back. The exposures were distributed over a period of twelve days. The other factors employed were a potential of 200,000 volts, with a 60 cm. skin focus distance, and 1 mm. of copper for filtration.

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[1] Friedlander, A., and Foot, N. C.: Report of a Case of Malignant Small-Celled Thymoma with Acute Lymphoid Leukemia, Am. J. M. Sc. **164**: 161-176 (Feb) 1925.

Within a month, the tumor mass and all of the symptoms had disappeared, and to date have not recurred.

COMMENT

The presence of a circular, sharply defined, flattened, nonpulsating mass in the anterior mediastinum, which hugs closely the anterior wall of the thorax, and has not invaded surrounding organs, justifies, in the absence of other evidence to the contrary, a tentative diagnosis of thymoma.

The peculiar flattening of the tumor and its symmetrical spread is probably due mainly to mechanical causes incident to its location between fairly unyielding structures.

Although it is a characteristic of thymomas that they vary greatly in their histologic structure, it would in general be anticipated that they would respond to radiation therapy in a manner analogous to that of other tumors originating in lymphoid tissues, and that a cure might reasonably be expected in the more benign types, especially if the treatment is instituted early.

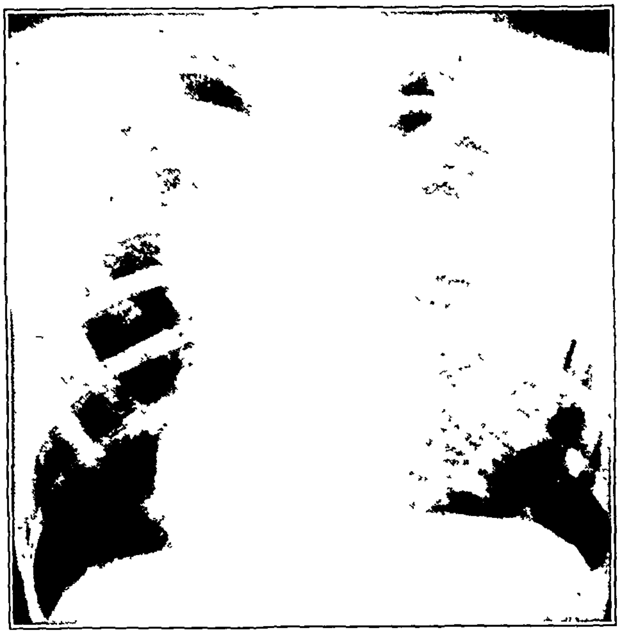

Fig. 3 (Case 1).—Roentgen ray appearance, Feb. 9, 1925, showing recrudescence of the mediastinal mass.

The therapeutic response of mediastinal masses to radiation therapy may also be of great assistance in making a differential diagnosis, and in doubtful cases such a test is fully justified.

ABSTRACT OF DISCUSSION

Dr. Henry K. Pancoast, Philadelphia: Thymic tumors are undoubtedly unusual in the experience of all of us. Probably they are more frequent than we realize, because most of them have not been reported. Many of them have been mistaken for other tumors of the mediastinum. They have, as Dr. Groover has shown, a very characteristic appearance. They are flat, look thin, and do not cast a very dense shadow, and their most characteristic appearance is noted in the lateral view. I was rather surprised to see the low position of both these tumors shown by Dr. Groover. I should expect a tumor originating in thymic tissue to extend well up to the neck. The latter of the two certainly was far away from the neck and was more in the central portion of the chest. So far as I can recall, I myself have seen only one tumor of this kind in a child, and that was many years ago when we were using a low voltage machine and had to treat through small areas. The child died before the treatment could be terminated. Clinically, one would expect dyspnea to be a very prominent symptom, if one gages the symptomatology at all by that of enlarged thymus in the child. The obstruction to the venous return would also be rather prominent, I should think. Of course, the treatment is practically that of a lymphosarcoma, or possibly Hodgkin's disease, although Hodgkin's disease very often requires much less treatment than does lymphosarcoma.

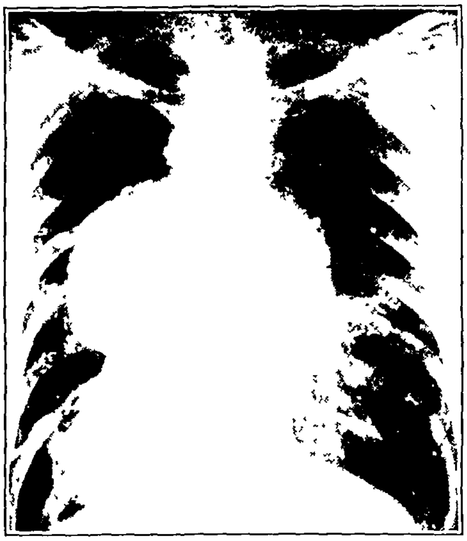

Fig 4 (Case 2).—Roentgen-ray appearance, Nov. 25, 1924. (Courtesy of Dr. Burcham.)

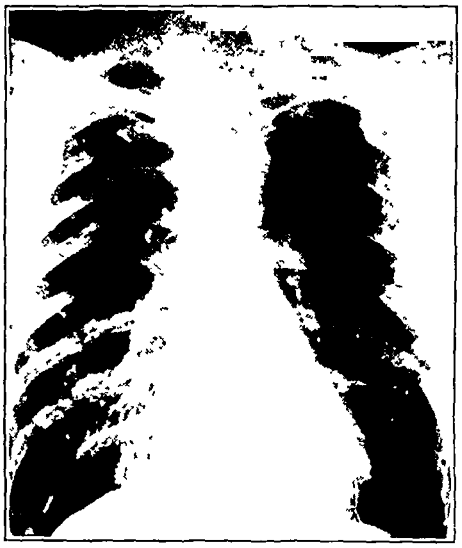

Fig. 5 (Case 2).—Roentgen ray appearance, April 13, 1925, showing complete disappearance of the mediastinal mass. (Courtesy of Dr. Burcham.)

Dr. M. M. Myers, Des Moines, Iowa: I am not a radiologist, but Dr. Groover has asked me to say a word about the second patient, since I was one of the first physicians he consulted following the beginning of his illness. He is a resident of southern Iowa, a lawyer, a member of Congress in Washington, and was referred to me because of the possibility of heart disease. The symptoms were comparatively few, chiefly fatigue and a pain in the left arm. On examination, one noted a pulsation in the second left intercostal space, about 7 centimeters to the left of the midline. This suggested to me the diagnosis of aortic aneurysm. As the author has said, he was referred to Dr. Thomas Burcham for roentgen-ray study, but the picture was so unusual that we admitted that we did not know positively what the condition was. Later he was sent to Dr. Groover. I have seen this patient within the last month, and as far as we can tell, his condition is satisfactory. There is no glandular enlargement to be detected, he is working, and he feels that he is in good health.

EPITHELIOMA OF THE LACRIMAL SAC *

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True neoplasms of the lacrimal sac are somewhat unusual. Many reported tumors are granulomatous or degenerative products of long standing inflammation, while others arise intrinsically from various elements in the sac wall.

The following cases of true epithelioma are noted in recent literature:

Guibert[1] (in 1905), mentioned a limited epithelioma in which cure was effected by the roentgen ray, and following him Rollet[2] and Lafon[3] reported cases of primary epithelioma of the sac, the latter recurrent. Bistis[4] reported a primary cancer in a man of 60, in which the sac wall became 1 cm. thick. Many of the cases reported have come from Italian clinics, and De Vincentiis,[5] as long ago as 1877, pointed out the danger of confusion in diagnosis with ordinary thickening of the sac wall in a chronic dacryocystitis. Maggi,[6] Pasetti,[7] and Denti[8] have contributed several cases. Hermann[9] reports a hard papilloma of the sac. Juler[10] discovered a similar good sized growth in the upper canaliculus. Posey's[11] case was a primary epithelioma of the sac proper.

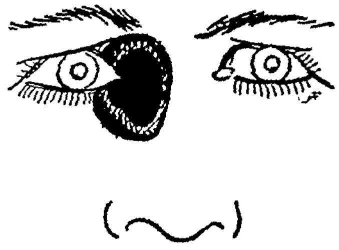

Fig. 1.—Black, extent of tumor; outer shaded area, limit of incision.

These cases were primary tumors, many being benign papillomas, filling the lumen of the sac, which can readily be peeled away from the growth. A few cases showed extensive thickening of the wall, with heaping up of many layers of cylindric and cuboidal cells, readily distinguishable from the hyaline distention of the plasmoma reported by Verhoeff and Derby.[12] The verrucous growths showed marked squamous cell increase, with dipping in and karyokinetic exaggeration in those cases bordering on malignancy.

Radical measures involving the sac have long been a necessary part of the cure of rodent ulcer. Of indirect interest with regard to the case that I shall cite is that of Morestin,[13] wherein radiotherapy had failed. Sac extirpation, with transplantation of a forehead flap, brought a good result. Posey[14] also reports an excellent result from a forehead flap after removal of a very large carcinoma, including much of the upper lid.

An element distinctly unusual enters into the case here reported; namely, the invasion of the normal lacrimal sac structures by a slowly growing epithelioma of the nasal skin, under the stimulating influence of roentgen-ray irradiation.

REPORT OF CASE

M. R. M., a widow, aged 49, was first treated for an intractable roughening of the nasal skin near the inner canthus of the left eye about sixteen years ago. Various dermatologists employed pastes and later began short and frequent roentgen-ray exposures. Such treatment at intervals during some years seemed to destroy the original site of trouble, but the lesion advanced across the bridge of the nose, leaving an unwholesome papyraceous skin behind. This closely resembled that seen after roentgen-ray burns elsewhere. There was no evidence of syphilis or tuberculosis. Repeated short exposures to an unscreened radium applicator were made four years ago, after which the first lacrimal swelling was noted.

Three and one-half years ago the patient became alarmed regarding a hard swelling at the inner canthus of the right eye, and consulted Dr. T. W. Ross. Surface plaques of radium (10 mg. with 1.23 mm. brass screen) were effective in stopping pain and clearing redness and roughness of the skin; but the swelling increased about the sac.

My examination, at the request of Dr. Ross, Jan. 17, 1922, disclosed a smooth, hard, slightly tender swelling, including both the canaliculi and the lacrimal sac. The neighboring conjunctiva was reddened; epiphora was constant. The puncta were normal in size, but no lumen was permeable to delicate probing. Force was not used. External rotation of the globe was somewhat painful.

Radical excision of the growth with as much neighboring skin and periosteum as possible was made, January 20 (Fig. 1). Under gas-ether anesthesia, the inner third of both lids, the skin and periosteum of the lateral aspect of the nose, the lacrimal sac as far down the nasal duct as possible, both canaliculi and the caruncle were removed. The resulting circular defect left one-third the cornea bare, and measured 3.5 cm. in diameter. Three 10 mg. radium needles, in a narrow, hard rubber uterine applicator, were stood upright in the nasal duct, remaining seven hours, 210 milligram-hours in all. Slight tingling for forty-eight hours was the only reaction, and the eye remained clean, under instillation of mercurochrome-220 soluble, 2 per cent., for two weeks. Normal drainage through the nasal duct occurred within a week after the operation, and it has never been occluded since.

Dr. R. L. Benson, head of the department of pathology, examined the tissue removed, which showed obliteration of the lumen of the sac and canaliculi. Microscopically, there was an irregular mass of stratified, squamous epithelium showing evidences of rapid growth. The malignant infiltration extended from the tissue about the eye along the wall

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* From the Department of Ophthalmology, University of Oregon Medical School.

* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Guibert: Epithélioma du sac lacrimal, Clin. ophth. **11**: 67, 1905.

[2] Rollet: Trois cas de cancer non ulcéré du sac lacrimal, Bull. et mém. Soc. franç. d'ophth. **23**: 416-29, 1906; Arch. d'ophth. **26**: 337-349, 1906; Le cancer primitif du sac lacrimal, Lyon méd. **116**: 1005-1007, 1906.

[3] Lafon: Epithelioma du sac lacrimal recidive, J. de méd. de Bordeaux **36**: 172, 1906.

[4] Bistis: Primary Cancer of the Lacrimal Sac, Trans. Eleventh Internat. Med. Congress, April, 1909.

[5] De Vincentiis: Tumore del sacco lagrimale, Mov. med-chir., 1877 (cited by Denti).

[6] Maggi: Epitelioma del sacco lagrimale, Ann. di ottalm. **35**, Nos. 10-11, 1906.

[7] Pasetti: Epitelioma del sacco lagrimale, Ann. di ottalm. **42**: 55-64, 1913.

[8] Denti: Papilloma del sacco lacrimale, Ann. di ottalm. **51**: 830-33, 1923.

[9] Hermann: Ein Tumor des Tränensacks, Klin. Monatsbl. f. Augenh. **71**: 728-734, 1923.

[10] Juler: Papilloma of Canaliculus, Arch. Ophth. **44**: 564, 1915.

[11] Posey: Case of Primary Epithelioma of the Lacrimal Sac, Tr. Am. Ophth. Soc. **19**: 205-208, 1921.

[12] Verhoeff and Derby: Plasmoma of the Lacrimal Sac, Arch. Ophth. **44**: 252-264, 1915.

[13] Morestin: Rec. d'ophth., June, 1908.

[14] Posey: Ophth. Rec., May, 1908.

of the tear sac. The pathologic diagnosis was squamous cell carcinoma, highly malignant (Figs. 2 and 3).

Six weeks after excision, the first plastic operation was done (Fig. 4) under procain. A canthoplasty 15 mm. long was lined by loosened conjunctiva, and a crescentic incision over the malar bone was puckered into a Y, to give fulness permitting the lengthened lid stumps to move over toward the nose. The nasal ends of the lids were temporarily sutured together, and anchored by mattress traction sutures to the nasal bridge and forehead.

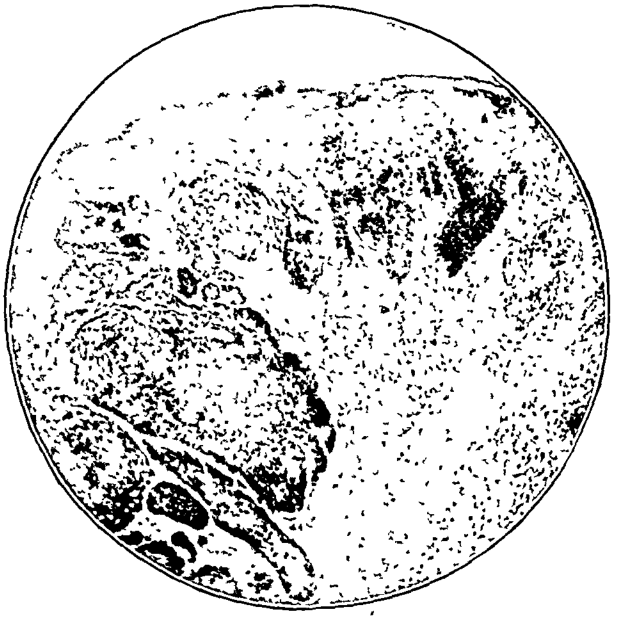


Fig 2.—Normal sac epithelium at top of section, at left and below, invasion by dipping down of cancerous masses

Three months after excision, the opening had been reduced to 15 mm., and a second plastic graft was made under procain (Fig. 5). A rectangular flap, 25 by 35 mm., based at the glabella, was switched from above the unshaven right eyebrow to fill the defect. The distal 5 mm. of this flap was folded under to form a new lid margin. The eyebrow was lifted into the forehead defect. All stitches held except one at the restored inner canthus, which cut out from the softened skin previously damaged by radiation. The cosmetic result was reasonably good (Fig. 6), in view of the extensive sacrifice of tissue. The eye whitened out, and the new upper lid opened and closed accurately. Scarring about the region of the internal rectus interfered somewhat with extreme abduction.

However, ten months after the excision, the patient became aware of an enlargement and hardening of the skin flap; the eye again became red and painful. She was not able to leave her home in a remote district to come in for further radium treatment as advised until twenty months after the original excision and seventeen months after the flap plastic operation (Sept. 26, 1924). A smooth, hard mass 1.5 cm. in diameter bulged up the flap, fixing it firmly to the lacrimal bone and inhibiting abduction beyond 10 degrees. The conjunctiva was slightly reddened; but the nasal duct remained wide open, and there was no sign of recurrence, ulceration or glandular swelling elsewhere.

No further surgical work was considered, and one powerful application of radium was made (220 milligram-hours); she returned three and again four months later, when a total of 840 milligram-hours was administered. The eye has again whitened, and the growth, though still hard, is smaller by one third. Abduction is still limited and painful. At present (February, 1925), three years after excision, the recurrence remains stationary.

CONCLUSIONS

Epithelioma of the skin about the eye may be metamorphosed by stimulant doses of roentgen rays or radium into a type that will invade conjunctival and mucosal structures.

Irradiated papyraceous skin may give rise to epitheliomatous invasion of healthy skin flaps about the eye, at a point of suture or of contact with the moving globe. Such attack is probably activated by irritation of granulation tissue by lacrimal secretion and by the bacterial flora of the skin and conjunctiva.

Radium and the roentgen ray must be used in sufficient strength to produce endarteritis and starvation changes, if employed at all on ocular neoplasms. It is regrettable that no opportunity was afforded for follow-up use of radium in this case.

Caution should be exercised in the selection of a physician for roentgenologic or radiologic treatment about the eye. Commercial exploitation of the sale of apparatus and of radium has brought about the installation of these powerful agents in the hands of physicians untrained in their use; or even into the control of lay technicians, or of so-called beauty specialists. The caution of such guesswork operators, in attempting radiotherapy, is often, as in this case, productive of stimulative changes rather than of destruction. Dermatology and ophthalmology must join hands in deciding methods of screening, distance, intensity and time limits for this valuable, yet highly dangerous, agent.

ABSTRACT OF DISCUSSION

DR. ALLEN GREENWOOD, Boston: It falls to the lot of few ophthalmologists to see a case of primary epithelioma of the lacrimal sac, only a few such having been reported in the literature. In this country Dr. Posey has described a case of primary epithelioma sac, and given a survey of the literature. Dr. Fenton has opened up the general subject so as to cover both the primary cases and those due to extension from some other neighboring structures. Dr. Fenton's case comes under the latter class rather than the primary epithelioma of the lacrimal sac. It is possible that if every extirpated sac were examined microscopically, a few more cases of primary epithelioma of the sac would be reported. I have never seen such a case, but have had several cases of epithelioma involving the sac due to extension from surrounding structures. I have a patient under my care now with a very much enlarged

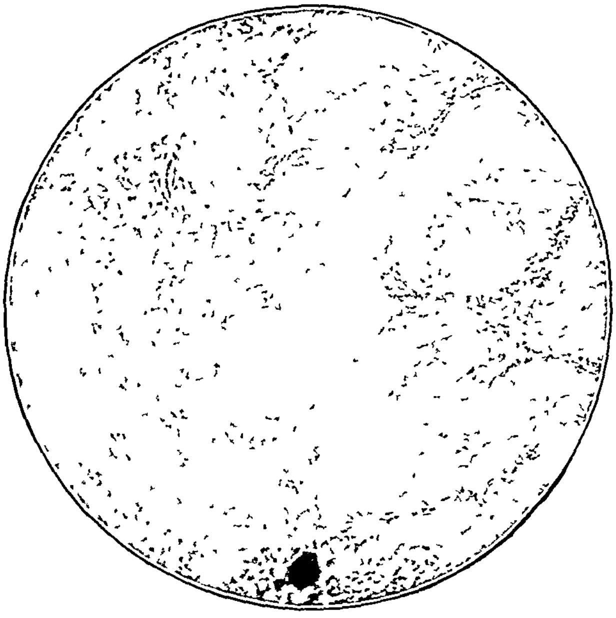


Fig 3.—Irregular masses of cells composing the body of the tumor.

lacrimal sac following an epithelioma of the antrum. Most cases, however, are due to extensions from the skin of the nose or lids. Those epitheliomas of the skin of the nose which have been caused by the irritating effects of eye glasses may, if neglected, readily affect the underlying lacrimal sac. Proper radium treatment will ordinarily take care of epithelioma of the sac which has resulted from an epithelioma of the skin above and surrounding it; but as Dr. Fenton has observed, the radium treatment must be applied by a perfectly competent specialist in this line, and the earlier the better. During the last ten or twelve years I have not resorted to surgical measures for any of the many cases of epithelioma of the skin of the eyelids and nose that I have seen, for the radium treatment in the hands of an expert has been sufficient.

Dr. L. Webster Fox, Philadelphia: Dr. Fenton's opening sentence, "True neoplasms of the lacrimal sac are somewhat unusual," stresses a very important phase of this condition with which observation I heartily concur; namely, its infrequent occurrence. Many epitheliomas involve the lacrimal apparatus by continuity of structure, but primarily malignant disease of this structure is indeed unusual. The differential diagnosis of presumably benign thickening of the sac wall from incipient malignant disease calls for fine exercise of judgment. In the case here reported, the structures were invaded by a slowly growing epithelioma of the nasal integument stimulated in this course by roentgen-ray irradiation, a point of utmost importance to be considered in determining which kind of treatment the more simple cases of skin cancer in this region require. The breaking down of the skin flap which had sustained a measure of destruction by the roentgen ray brings out another point of extreme importance, and this possibility seems not to have been sufficiently emphasized by those handling this type of case. My own experience has embraced every combination of surgery and these several forms of radiotherapy with a fair measure of reasonable success in all; but perhaps the better ultimate results have been obtained by surgery first and the application of radium or the roentgen ray, or both, in the very competent hands of Dr. Pfahler of Philadelphia. To be sure, the very small flat superficial epitheliomas of the skin respond very well to fulguration or radium alone, but many of these are distinctly irritated by even small doses of the roentgen ray, especially when frequently repeated. Cases so treated, as Dr. Fenton has emphasized, do not make the most ideal cases for plastic surgery. Close cooperation is necessary between the surgeon and the roentgenologist, but more especially is this imperative in the case of ophthalmology, as the work is not completed with the destruction of the disease—the cosmetic features of the involved area must be considered together with the maintenance of the normal function of the eye and its appendages.

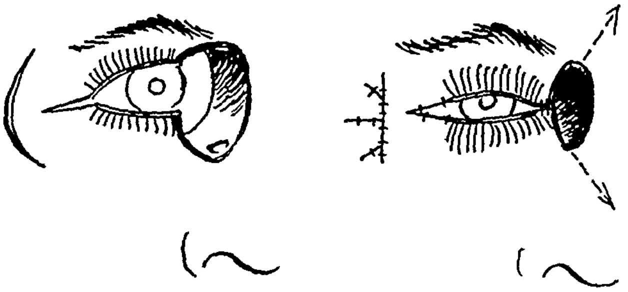


Fig 4.—Plastic operation for moving lids toward nose, reducing defect.

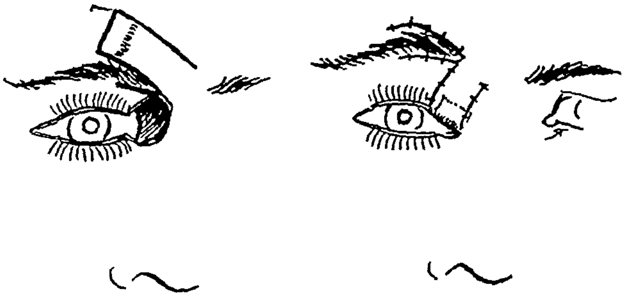


Fig. 5.—Plastic repair of upper lid defect with forehead flap.

Dr. William Campbell Posey, Philadelphia: In addition to the case of primary growth to which Dr. Greenwood referred, I reported another case some years ago. This case was one of chronic inflammatory tumor, with cyst and giant cell formation in the floor of the orbit, and connected with the lacrimal sac, arising after false passages of lacrimal probes. The tumor had arisen in consequence of the forceful passage of probes into the lacrimal duct, this operation having been performed about a year previously to relieve a persistent watering of the affected eye. Following the passage of the probes there had been marked swelling of the lids, and the lids and skin adjacent to them had been discolored for weeks by the blood that had invaded the tissues under the skin. As soon as the pain consequent on the trauma of the operation had subsided, the patient noticed that much of the swelling could be made to disappear by firm pressure, and this was attended by a peculiar crackling sensation. Although the discoloration disappeared after a time, the swelling and crackling sensation elicited by pressure remained, and she soon noted that the former began to assume definite shape, taking the form of a more or less rounded kernel at the inner angle of the eye. Blowing the nose did not seem to increase its volume. When seen by me the tumor was of the size and form of a small butternut in the lower and inner part of the orbit, which gave the impression of a bunch of small angleworms to the examining finger. Firm pressure elicited crepitation and caused the swelling to disappear. The mass appeared to have no connection with the adjacent bone below or with the lacrimo-ethmoidal cells internally, which presented nothing unusual in their external appearance. The mass was exposed by operation and found to be closely connected with the tissues in the region of the sac and those directly below the coujunctival fornix. Dr. George B Wood, who studied the growth, was of the opinion that "the specimen was not a true tumor, but the reaction of tissue to some form of foreign body irritation." From the history of the case, the deduction is reasonable that, at the time that the nasolacrimal duct was probed, the walls of the lacrimal sac or part of the duct were torn and in some way air was forced into the tissues of the lower lid. Subsequent inflations of this tissue due to blowing the nose, etc., kept this opening patulous, and either the pressure of the air in the tissues or the forcing in of lacrimal secretion and minute foreign bodies produced a reaction in the tissues, with the formation of giant cells.

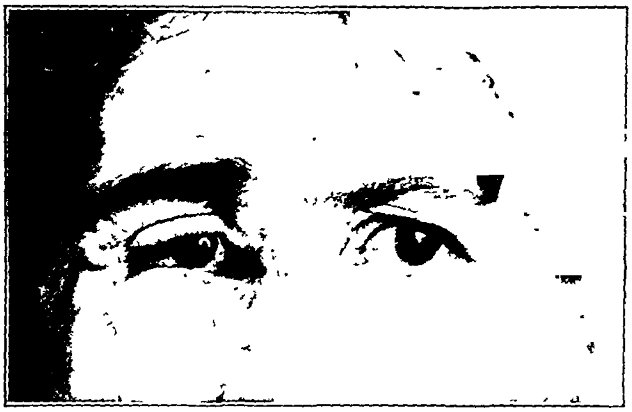


Fig 6.—Results of plastic operation, three months after second operation.

Dr. Ralph A. Fenton, Portland, Ore.: My particular object in presenting this subject is the danger of improper irradiation. We have had our attention called to this subject by surgeons who are finding metastases of carcinoma in various parts of the nervous system, notably the brain, after irradiation has been carried out to a considerable extent in the uterus and other parts of the body. As regards the prognosis of this particular case, it will be noted that the recurrence in the flap is now stationary following massive doses of radium used at one month intervals. However, it is to be anticipated that there will be an invasion. Mosher has pointed out that there will probably be a little invasion of the anterior ethmoid cells, and probably of the antrum.

STUDIES ON GASTRIC ULCER

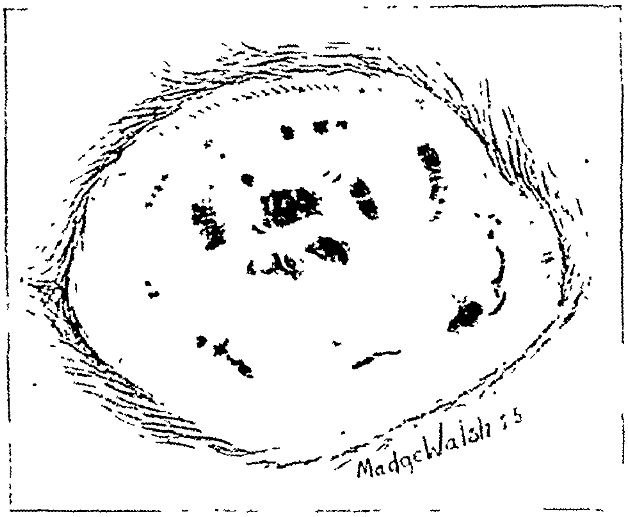
III. THE EXPERIMENTAL PRODUCTION OF GASTRIC ULCER BY LOCAL ALLERGY: PRELIMINARY REPORT

A. C. IVY, Ph.D., M.D.
AND
P. F. SHAPIRO, B.S.
CHICAGO

It occurred to us that acute or chronic ulcers of the stomach might be produced on the basis of the "Arthus phenomenon," or "local anaphylaxis," studied recently in detail by Opie.[1]

METHODS

Rabbits were injected with a protein until a skin ulcer was obtained. The specific protein was then injected aseptically into the gastric mucosa.



Appearance at site of injection, five days after, in Dog 4, which was sensitized to egg albumin, and given an injection of a provocative dose into the stomach pouch after twenty-eight days. The ulcer was 1.8 by 1.4 cm.

Dogs with a pyloric pouch[2] were sensitized to a protein. The provocative dose was injected into the mucosa of the pouch, and into the adjacent skin.

The precipitin titer of the blood was followed in both series of experiments.

RESULTS

The gastric mucosa of the rabbits killed at varying intervals presented the following sequence of pathologic changes at the site of injection: (1) local passive hyperemia and edema in from one to two days after injection of the specific protein into the gastric mucosa; (2) induration and necrosis in from two to five days after; (3) ulceration in from three to six days, and (4) healing with papillomatous overgrowth after twelve days. In one rabbit, an ulcer was still present thirty-three days after. Positive results were obtained with egg albumin, beef protein, oat protein, edestin and horse serum.

In dogs, since the reaction in the mucosa can be observed ad libitum, the pathologic changes can be more accurately described. Within two minutes after injection of the provocative dose, the pouch contracts violently and everts; the mucosa becomes cyanotic and markedly edematous. The next day, at the site of injection, there is a large, bluish black, dried area definitely limited by a thin line of active hyperemia. On the third day, the central portion of the area turns grayish yellow. By the sixth day, the necrotic mucosa has sloughed out, leaving a punched out ulcer with a granulating base. The edges of the ulcer gradually turn in, and healing is complete in from twenty-one to thirty days. Positive results were obtained with egg albumin, beef protein, oat protein, edestin and squash seed globulin.

A second injection of the protein within three days gave no reaction; within from three to seven days it yielded a second ulcer, and after from seven to ten days only a general reaction. The skin reaction was positive, but quite mild, being limited to a slight transient edema.

CONCLUSION

Acute ulcers of the stomach have been produced in dogs and rabbits on the basis of local anaphylaxis to foreign proteins.

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[1] Opie, E. L.: Inflammatory Reaction of the Immune Animal to Antigen, J. Immunol. **9**: 231-268 (July 24) 1924.

[2] Ivy, A. C.: Studies on Gastric Ulcer, Arch. Int. Med. **25**: 6 (Jan.) 1920.

SEMINAL VESICLES FROM SYPHILITIC PATIENTS

HISTOLOGIC STUDY *

ELI R. SALEEBY, M.D.
PHILADELPHIA

Warthin,[1] in his classic paper on the new pathology of syphilis, has shown that the testes have a marked susceptibility to infection with *Spirochaeta pallida.* A histologic study of the seminal vesicles from syphilitic patients seemed to be of extreme interest, since these organs are part of the genital system, and especially in relation to the transmission of the disease. A careful survey of the literature, however, has failed to reveal either clinical reports or histologic examination of these organs. At the suggestion of Drs. Kolmer and Schamberg, the present study was undertaken.

MATERIAL AND METHOD OF STUDY

This paper is based on the study of the seminal vesicles from twenty-eight definitely syphilitic cases secured during necropsies performed at the Philadelphia General Hospital. Twenty-one cases presented positive Wassermann reactions during life. In three cases there were no Wassermann reports, but the patients gave a history of chancre, and the tissues, grossly and histologically, presented pathologic syphilitic changes. The remaining four cases gave negative Wassermann reactions, but clinically and pathologically they were considered syphilitic. A few of the cases were neurosyphilitic, and one was a case of congenital syphilis occurring in a 3 months' old negro baby with a positive blood Wassermann reaction.

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* From the Research Institute of Cutaneous Medicine.

* Read before the Section on Pathology and Physiology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Warthin, A. S.: The New Pathology of Syphilis, Am. J. Syph. **2**: 425 (July) 1918.

The seminal vesicles were examined and the formaldehyd fixed paraffin sections were stained with hematoxylin and eosin. In our hands the Levaditi silver impregnation stain, for the demonstration of *Spirochaeta pallida,* proved the most satisfactory, and we used it as a routine in this study. To insure a good technic I included a piece of control tissue with each one of which was a portion of liver from a congenitally syphilitic fetus in which the spirochetes previously were demontrated by the Levaditi silver impregnation method. Paraffin sections of formaldehyd fixed seminal vesicles of ten nonsyphilitic subjects, of variable ages, were stained with hematoxylin and eosin and studied to compare with the syphilitic material. This was necessary because the textbooks give a sketchy and variable description of the normal histology. In the study of the sections, particular attention was directed to the condition of the blood vessels, since they are known to have a special susceptibility for the organism and show the greatest degree of change in the disease. The testes and the inguinal glands were also removed and studied in all cases; the findings will be reported at a later date.

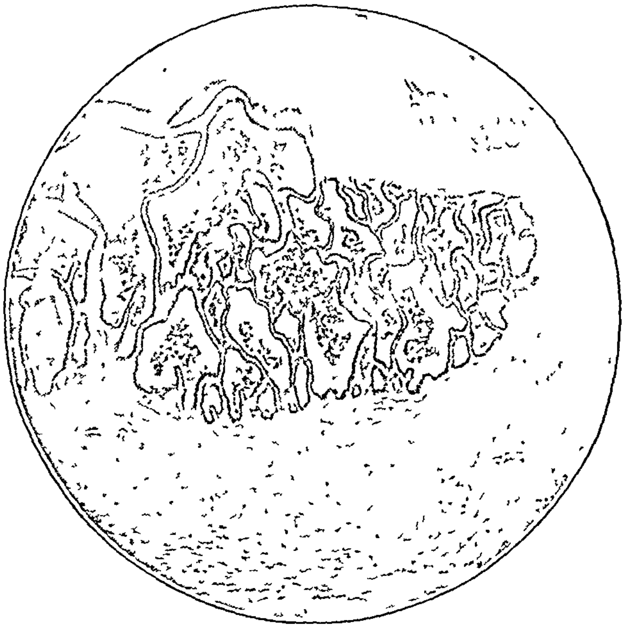

Fig. 1.—Section of the seminal vesicles showing the general structure

RESULTS

Grossly, the size of the seminal vesicles varied with the age of the subject and with the fluid content. In no instance was I able to determine any difference between the syphilitic and the nonsyphilitic organs either in the thickness of the walls or in the contents, although as a rule the quantity of the fluid was less in the syphilitic cases.

The histologic picture of the sections from the syphilitic subjects varied. The epithelial lining varied from one to three layers of cylindric, cuboidal or simple stratified cells; in some cases there was a total atrophy of this lining. The amount of the fluid did not have any appreciable effect on the shape of the epithelial cells. External to the fibrous and elastic submucosa there was a smooth muscular coat of two and three layers—inner and outer longitudinal and middle circular. The three layers appeared in the main part of the organ and the two layers in the diverticular parts. In some diverticula, only one layer was demonstrable. The contents of the cavities consisted of débris from degenerated epithelial cells, fatlike globules and pinkish stained homogeneous material, which probably was the secretion from these organs. In eight of the sections spermatozoa were noted, and in five others some dark stained granules were seen and considered to be the heads of the degenerated spermatozoa.

None of the cases showed syphilitic changes in the structure of the organ proper. Two cases presented definite involvement of the blood vessels, but these vessels were external to the outer muscular layer. The adventitia and the media exhibited marked proliferation, with perivascular infiltration of plasma cells and many lymphocytes. Both patients had syphilitic aortitis; one died from ruptured thoracic aneurysm and the other from cardiorenal disease. Neither the epithelial structure nor the musculature of the seminal vesicles showed any definite syphilitic changes.

The vessels in many of the other sections showed some degree of sclerosis, with proliferative changes and perivascular lymphocytic infiltration with no plasma cells. However, similar changes were noted in sections of the vesicles from the nonsyphilitic subjects. In none of the Levaditi stained sections was I able to demonstrate the presence of *Spirochaeta pallida,* though every control was positive.

COMMENT

In 1920, Thompson,[2] in his papers on the history of syphilis in the genital organs, stated that syphilis of the seminal vesicles has never been shown, and most authors either ignore the subject or remark that it is rare. A careful survey of the literature failed to show any reported cases. My findings certainly confirm the general belief about the rarity of syphilis of this organ. In the two cases in which I was able to demonstrate vascular (syphilitic?) changes histopathologically, the lesions were confined to the vessels outside the outer muscular layer, and in neither of these could *Spirochaeta pallida* be demonstrated. These intricate organs

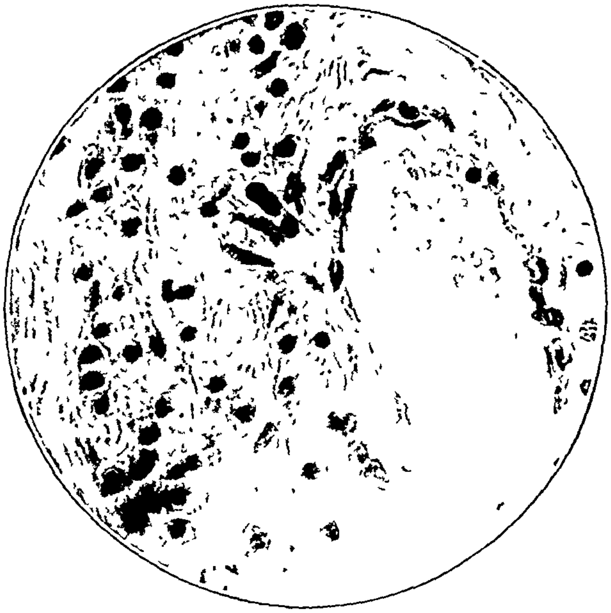

Fig. 2.—Section from a syphilitic case showing perivascular round cell infiltration with many plasma cells and lymphocytes

vary in different specimens and in different parts of the same organ. This probably accounts for the conflicting statements in the various textbooks.

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[2] Thompson, Lloyd: Syphilis of the Genital Organs of the Male and the Urinary Organs, Am. J. Syph. 4: 706 (Oct.) 1920.

The contents of the seminal vesicles were examined by Brack[3] in 500 cadavers (1920-1922), and no spermatozoa were found in 47 per cent. of the total.

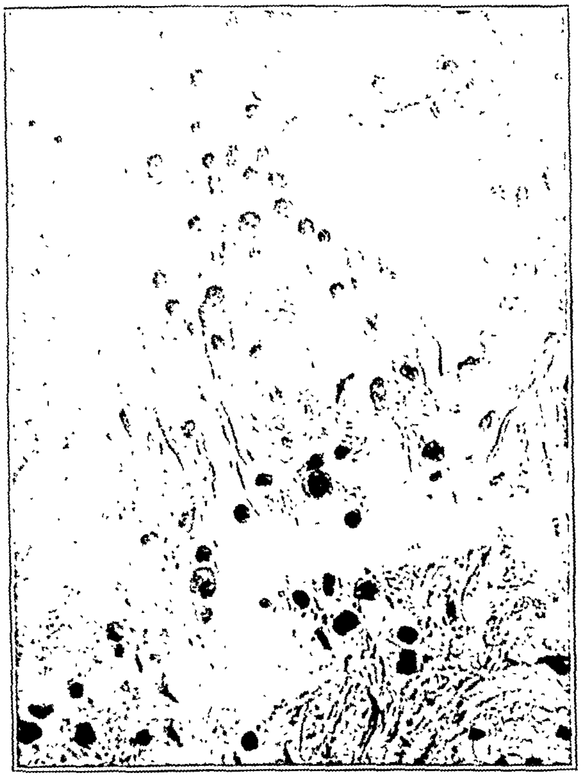

Fig. 3.—Section from another syphilitic case showing changes similar to those in Figure 2.

The absence of the spermatozoa and their disintegrated parts in fifteen of the syphilitic sections is a noteworthy incidence. Without further study it is difficult to state whether syphilis influenced their absence. But their absence from these and four of the nonsyphilitic sections strengthens the belief that their primary function is secretory and their function as a reservoir is secondary. The vas deferens is apparently the organ that acts as a reservoir for the testicular secretion.

It is beyond the scope of this paper to discuss the function of these organs. Moulin,[4] recently, reviewed this subject thoroughly. Most of the authors agree that the seminal vesicles have an important secretion. Its importance is not only in supplying a medium favorable for the motility of the spermatozoa and diluting the testicular secretion but also in completing the volume of fluid for ejaculation. Whether they are indispensable for copulation and fecundation is still open for conjuncture and needs further study.

SUMMARY AND CONCLUSION

The seminal vesicles from twenty-eight syphilitic human subjects were studied grossly and histologically. In none of the sections were syphilitic lesions noted, except possibly in two, in which the vessels in the serosa showed perivascular round cell infiltration of many plasma cells and lymphocytes. The presence of *Spirochaeta pallida* could not have been demonstrated in any of the sections stained by the Levaditi silver impregnation method. The findings in this investigation indicate that syphilis of the seminal vesicles is very rare.

1426 Spruce Street.

ABSTRACT OF DISCUSSION

DR. JOHN A. KOLMER, Philadelphia: Apparently no organ of the human body is completely invulnerable to infection with *Spirochaeta pallida*, and this study is of particular value in connection with the mechanism of conceptional syphilis. It is well known, for example, that the testes may be infected with the spirochete. This is not based on clinical detection, because the familiar clinical lesion of testicular syphilis, the billiard ball lesion, is distinctly uncommon. But we now know that histologic examination of the testes of syphilitic patients shows a high incidence of infection. The prostate gland would appear probably to be next in frequency in percentage of infection, although there are not more than thirty odd cases of syphilis of the prostate gland on record. But, curiously enough, the literature has been very silent on the matter of infection of the seminal vesicles. I know of no reported case of syphilis of this organ, and the findings of Dr. Saleeby in the one or two cases are only suggestive at best. The mild degree of perivascular round cell infiltration is suggestive, but by no means conclusive. It would remain to show whether or not the gonococcus could produce histologic changes of this degree in this organ. It is particularly significant that, despite a great deal of labor in going over the slides, spirochetes were not found. Thanks to the work of Dr. Warthin, we are prepared to find that the spirochete might be present in the tissue without a great deal or even probably without any demonstrable degree of round cell infiltration, but the sections of these organs were entirely negative for the spirochete. I think the finding is of considerable interest, and very probably the testes are to be looked on as the most important organ of the genital system in relation to the conceptional transmission of syphilis.

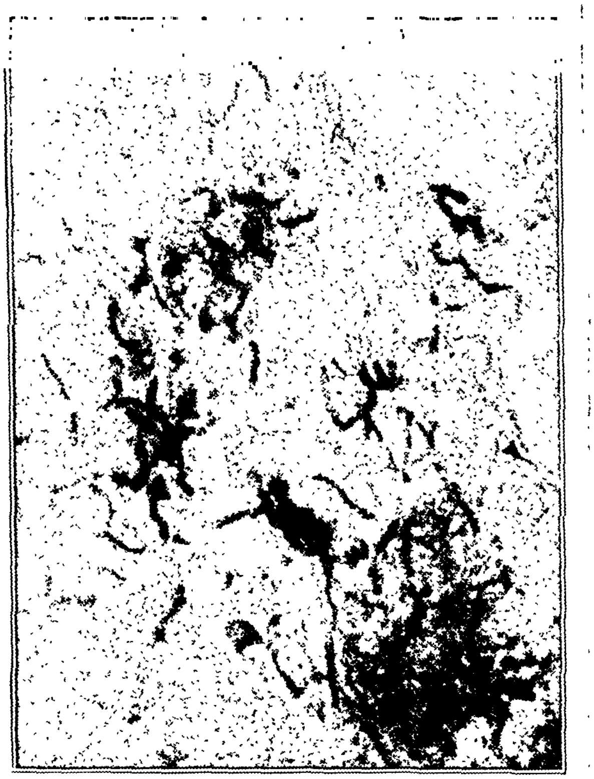

Fig. 4.—Levaditi stained section showing Spirochaeta pallida in the control tissue.

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3. Brack, E.: Contents of Seminal Vesicles Just After Death, Ztschr. f. urol. Chir. **12**: 403 (April 14) 1923; abstr., J. A. M. A. **80**: 1820 (June 16) 1923.

4. Moulin, A.: Contribution a l'étude des vésicules séminales de l'homme, Fountaines (Neutchatel), A. Vourmard, 1923.

Clinical Notes, Suggestions, and New Instruments

ACTION OF DIATHERMY IN CALCIFIED SUBDELTOID BURSITIS

Joseph F. Harris, M.D., New York
Associate Physical Therapist, Mount Sinai Hospital

E. M., a man, aged 52, a musician, was referred to me, Jan. 21, 1925, complaining of a painful left shoulder with inability to raise his left arm from his side. He stated that this condition had been present seven years with intermittent attacks of inability to raise the arm. The roentgenograms verified the diagnosis of calcified subdeltoid bursitis (January 19). He received his first treatment, January 21, and at the end of two weeks' treatment he was able to resume his occupation, that of a musician, playing a bass viol in a symphony orchestra. Some pain, however, persisted, and it was necessary in all to give him thirty-two treatments, at the end of which time all the symptoms, namely, pain and restricted motion, had disappeared. Roentgenograms were again taken, April 6, and showed an absorption of the greater part of the deposit. These pictures, forming the case record, show the diagnosis and the result of the treatment by diathermy.

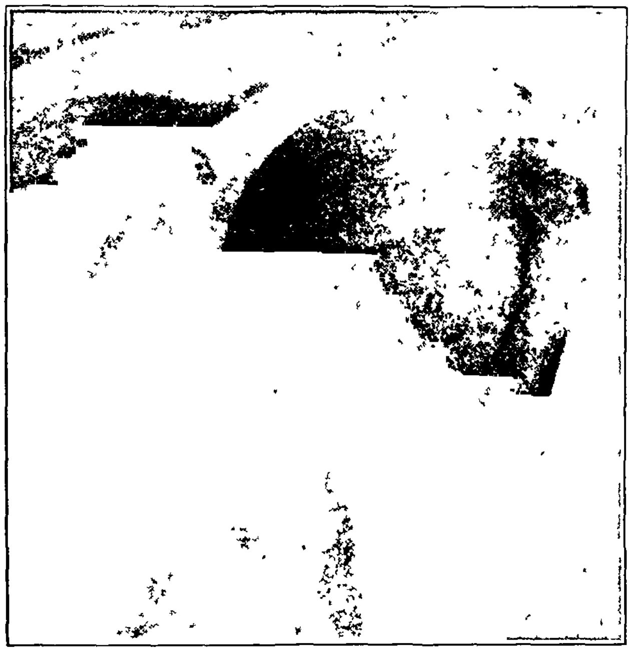


Fig. 1.—Appearance and size of deposit before treatment (January 19).

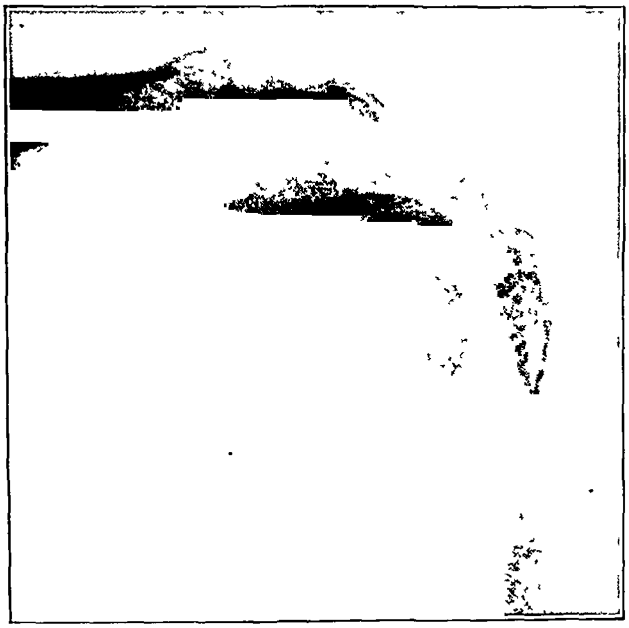


Fig 2.—Nearly complete absorption after course of treatment by diathermy (April 6).

The accompanying illustrations show conclusively that diathermy is a curative measure and not a palliative one. A long series of cases treated over a period of years has shown a complete restoration of function and an absence of pain. It is therefore fair to assume that in each case the greater part of the deposit has been absorbed by this form of treatment. If not completely absorbed, it has been reduced to such a size that it does not interfere with the function of the shoulder. Up to this time I have not seen a recurrence. I do not hesitate to say that this is the treatment *par excellence* for this condition.

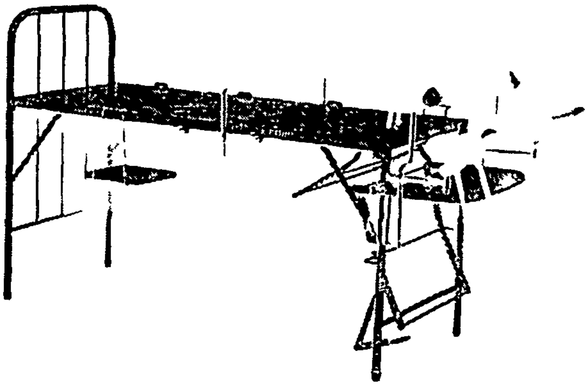
17 West Seventy-First Street.

A NEW DELIVERY BED

George Gellhorn, M.D., St. Louis

The delivery beds in common use in this country have one or more of the following distinct shortcomings:

1. The legs of the patient in labor must be held by attendants. This is a drain on the nursing force, which is none too ample in any hospital, and seriously cripples the nursing service at night. Moreover, nurses who act as human leg holders are unable to watch the process of labor and thus miss at least one important part of their training. If the second and third stages are at all prolonged, the actual physical effort is not inconsiderable.



New delivery bed.

2. Mechanical leg holders, on the other hand, are by no means satisfactory. Of the various types in use, the straight leg holder, in which the foot of the patient is secured in a vertical elevation, imposes a noticeable strain on the sacro-iliac ligaments, leaves the patient with backache for some days after delivery, and may be the cause of protracted sacro-iliac disease. Another type of leg holder provides support only for the knees and leaves the lower limbs and feet hanging free. This almost regularly leads to unpleasant paresthesias; "the feet fall asleep."

In either type of leg holder the legs are elevated and thereby the perineum is put on a stretch which, when superimposed on the pressure exerted by the advancing head, may be conducive to deeper lacerations.

3 Whether the patient's legs are steadied by nurses or in leg holders, the pelvic outlet is tilted more or less upward,

which, theoretically at least, requires more force from behind for the expulsion of the child.

4. More important, to my mind, is the fact that, with her feet in the air, the patient is unable to utilize the abdominal muscles to best advantage during the last part of the second stage and before she is fully anesthetized.

5. Whether held by nurses or by mechanical devices, the patient may—and quite regularly does—change her position at the edge of the obstetric table or bed. Even a beginner in obstetrics gathers this experience soon. Frequently the patient becomes unmanageable in the interval between the superficial obstetric and deep surgical anesthesia; the nurses are pushed hither and yon, and many a twisted or bent leg holder, all over the country, bears mute testimony to the struggles of the patient. Just when forceps are to be applied or a version is to be made or stitches inserted in a lacerated perineum, the patient may make an unconscious defensive effort and push herself up on the table and away from the obstetrician. This frequently means not only a loss of time but—what is more important—a disarrangement of the carefully applied sterile draperies and a break in asepsis.

I have endeavored to overcome these various difficulties by a novel but simple attachment to the lower end of an ordinary delivery bed. The latter is of comfortable height and width and of sturdy construction. The comfortable and roomy footrests of metal, shaped like the wooden shoes of the Dutch peasant, are on a height with the table, that is, on the same level as the back of the patient, and can be adjusted to any distance from the table. Connected with the foot rests are well rounded knee supports, which also are easily adjusted to the individual patient. Between the foot rests, but a few inches below them, is an extension table or shelf which may be turned down by pressing on a pedal. A simple arrangement permits one to raise the lower end of the table for the few occasions when an elevation of the pelvis is desired for obstetric manipulations, such as reposition of the prolapsed cord. The table itself is covered with a mattress, one inch in thickness, which is composed of spongy rubber; it is both firm and resilient and can readily be scrubbed and kept clean (not shown in the illustration).

When the patient reaches the second stage of labor, she is moved toward the lower end of the bed until the buttocks are even with, or one-half inch beyond, the edge. The feet are placed, at a comfortable distance, in the footrests and secured there by a washable strap round the ankles. The knee supports are pushed upward until the knees rest securely in them; another strap is then fastened across the knees, so that these cannot be lifted out of the supports. The legs may be kept parallel to each other or, if greater exposure of the perineum is desired, divergent and held in their position by the turning of a screw. Shoulder braces, which are padded with the same spongy rubber that covers the table, are now adjusted; and the patient, while in a perfectly comfortable position which she may keep for hours, is unable to move either forward or backward on the bed. There is enough play both in the foot rests and in the knee supports to exclude even the slightest sensation of being incarcerated. In this position she can make the best possible use of her auxiliary musculature, and she is aided in this by handles at the side of the table on which she may pull.

When actual delivery draws near, the vulva is disinfected in the usual manner (we use soap and water and follow this with a watery, 1.5 per cent. solution of picric acid), the adjustable shelf between the legs is covered with a pillow, and three large, sterile sheets are placed, one over this shelf and pillow and one over each leg and covering the abdomen. The shelf serves for the reception of the child and, later, for instruments needed for repairs.

The obstetrician, at all times, has an unobstructed view of the birth passage. I have the impression, though this would be difficult to prove statistically, that the perineum is more relaxed and traumatisms are reduced, other things being equal. Obstetric operations are undoubtedly of greater ease than with the feet elevated. Antiseptic and aseptic preparations, once made, are not disturbed throughout the course of the delivery.

Before the anesthetist starts the narcosis, the hands of the patient are secured in a leather sling, which eliminates any annoying interference on the part of the slightly narcotized patient. Two trays firmly attached beneath the bed on either side contain all the appurtenances for the narcotizer; this arrangement does away with an additional narcotizer's table in the delivery room.

From this description it will be seen that the personnel for delivery is greatly simplified. There is the obstetrician and his assistant or an instrument nurse, and the anesthetist, and merely one circulating nurse. Other available nurses may watch the progress of the delivery; for the patient, once in her final position, requires no further attention.

There may be instances in which the arrangement as outlined is not desired. The operator may, for example, wish for an elevation of the legs and a stretching of the perineum. This is readily accomplished by pushing the foot rests upward and fastening them in this position. Dwarfs or giantesses cannot be accommodated, but no arrangement can possibly be made for such exceptional instances. For all other cases, that is to say, for practically our entire obstetric work, the new bed answers every requirement. We have used it in almost 500 deliveries and have found it uniformly satisfactory. The simplicity of its construction, its stability, and the moderate price are further advantages.[1] The importance of the subject, the comfort of both patient and obstetrician, the safety of our manipulations, the saving of labor and the resulting benefit to hospitals and nurses' training schools have seemed to me to justify a somewhat detailed description.

Metropolitan Building.

A CASE OF MARKED SPLENOMEGALY AND LYMPHOCYTOSIS ASSOCIATED WITH SYPHILIS

Arch Elkin, M.D., and Harold M. Bowcock, M.D., Atlanta, Ga.

A moderate degree of splenomegaly is a frequent finding during the course of syphilitic infection. Marked splenomegaly is sometimes encountered, and Giffin[2] has reported three such cases which were treated surgically because of absence of improvement under antisyphilitic treatment. Other cases[3] have been reported in which splenomegaly was associated with syphilis accompanied by a clinical picture resembling Banti's disease We have been unable to find in the literature the report of a case similar to the one reported here, in which the clinical picture at first suggested an atypical leukemia, and later Banti's disease, and in which antisyphilitic treatment was attended by marked improvement.

REPORT OF CASE

History.—A widowed white man, aged 47, seen Aug. 25, 1924, complained of pains in the left side of the abdomen and chest, and weakness. His father had died at the age of 59 from alcoholism, and his mother had died at the age of 56 from chronic interstitial nephritis; the family history was otherwise unimportant. During 1902, the patient had had a sore on the penis which had been diagnosed as a chancre. The treatment had consisted of tablets and a tonic over a period of two years. During 1908, he had had an operation for mastoiditis. During 1914, he had felt bad and had been given an intravenous injection of arsphenamin and had taken a liquid medicine for six months. During 1918, he had had an attack of influenza with complete recovery. During 1921, the first blood Wassermann test had been made and reported negative. The remainder of the past history was unimportant. For two weeks, the patient had suffered from pain which started suddenly beneath the left costal margin, radiating across the abdomen to a corresponding position on the right side. The pain had not been very severe and was of a drawing character. He had consulted a physician who had treated him for pleurisy without relief. For one week, he had suffered from weakness and anorexia.

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[1] Manufactured by the Smith and Davis Hospital Bed Company, St. Louis.

[2] Giffin, H. Z.: The Treatment by Splenectomy of Splenomegaly with Anemia Associated with Syphilis, Am. J. M. Sc. **152**: 5 (July) 1916.

[3] Osler, William: Syphilis of the Liver with the Picture of Banti's Disease, Clin. J. **43**: 462, 1914. Anderson, H. B.: Case of Syphilitic Splenomegaly Resembling Banti's Disease, Canada Lancet **47**: 740, 1914. Caussade, G., and Levi-Franckel, G.: Un cas de syphilis ayant evolue sous la forme du syndrome de Banti; le syndrome de Banti, Bull. et mém. Soc. méd. d. hôp. de Paris **37**: 1029, 1914. Quoyrat, L.: Syndrome de Banti et syphilis, ibid. **38**: 296, 1914.

Physical Examination.—The patient was well developed and fairly well nourished. The skin and mucous membranes were pale. The left tonsil was large and cryptic. Many superficial glands were palpable, and some seemed to be slightly enlarged. There was some bulging of the entire left abdomen, and there was a firm tumor mass extending from the left costal border downward to the region of the umbilicus and to the right, about 2.5 cm. beyond the umbilicus; no notch was felt. The urine gave slight reduction of Benedict's solution. There was a moderate secondary anemia; the white blood cell count was 49,250, of which 90 per cent. were small mononuclears, 8 per cent. polymorphonuclear neutrophils and 2 per cent. large mononuclears. The blood Wassermann reaction was reported to be negative. The remainder of the examination revealed normal findings.

Course.—The diagnosis of an atypical leukemia was made, and the patient received five roentgen-ray treatments during five days. The temperature varied between subnormal and 103.4 F., and the pulse rate between 86 and 130 a minute during the time of treatment. Several weeks later, the spleen was no longer palpable, and the patient resumed his occupation of a traveling salesman. While on the road, he received sodium cacodylate in 5 grains (0.3 gm.) hypodermic doses twice weekly. He continued to feel well until about Jan. 1, 1925, when he again started to suffer from weakness and pains in the left upper quadrant. January 10, the spleen was found to be quite large, but the white blood cell count was only 5,250. The differential count was: polymorphonuclear neutrophils, 50 per cent.; polymorphonuclear eosinophils, 1 per cent.; small mononuclears, 37 per cent.; large mononuclears, 10 per cent., and neutrophil myelocytes, 2 per cent. He was readmitted to the hospital, January 20. On examination there was a marked icteric color of the skin. There was a firm, smooth, tumor mass extending from the left costal margin downward 2 cm. below the level of the umbilicus, and 2 cm. to the right of the umbilicus; no notch could be felt. The liver edge was palpable 5 cm. below the right costal margin; the surface was smooth, and the edge was firm. The urine contained a trace of albumin and gave a positive reaction for bile. The red blood cell count was 2,720,000, the hemoglobin was 44 per cent. (Dare), and the white blood cell count was 4,500. The differential blood count showed polymorphonuclear neutrophils, 47 per cent.; polymorphonuclear basophils, 2 per cent.; small mononuclears, 49 per cent.; large mononuclears, 1 per cent., and transitionals, 1 per cent. The icterus index of the blood serum was 60, a 1:10,000 solution of potassium dichromate being used as a standard.

The patient's condition changed rapidly to a drowsy semicomatose state with the temperature curve varying rapidly between 96 and 104.8 F., and the pulse rate varying between 100 and 140 a minute. There was marked anorexia, nausea and vomiting. Because of the patient's rather critical condition and the blood picture, a transfusion of the blood was considered advisable. There was some delay in finding a satisfactory donor, although the recipient's blood belonged to Type IV, and while continuing in the search, 0.45 gm. of neo-arsphenamin was given intravenously, January 25. Three days later, a transfusion of 300 c.c. of whole blood was performed by the Unger method without a reaction. Following the neo-arsphenamin, the temperature dropped quickly and did not rise above 100 F. After the transfusion, the improvement was so rapid that it seemed unlikely that the results could be due to such a small amount of blood. Consequently, February 2, he received a second injection of 0.45 gm. of neo-arsphenamin, and a Wassermann reaction was done on the blood; the report was complete fixation.

Following this injection, the improvement in the patient's condition was remarkable. In a few days, the spleen and liver had decreased in size, the jaundice had lessened perceptibly, the temperature and pulse rate had returned to normal, and the patient felt better in every way. February 5 and 8, he received 0.6 gm. doses of neo-arsphenamin, and each was followed by a reaction with headache and elevation of temperature; with the second reaction, the temperature rose to 103.5 F., and then returned to normal. February 11, he received 0.3 gm. of neo-arsphenamin and, February 14, 0.45 gm. without a reaction. February 15, the patient's general condition was so much improved that he was permitted to leave the hospital. On discharge, the icterus had entirely disappeared, the liver was no longer palpable, and the splenic edge was felt only 2 cm. below the costal margin. The red blood cell count was 4,600,000; hemoglobin, 55 per cent., and white blood count, 3,000. The differential count showed: polymorphonuclear neutrophils, 55 per cent.; small mononuclears, 30 per cent.; large mononuclears, 13 per cent., and transitionals, 2 per cent. After leaving the hospital, the patient developed an arsenic dermatitis with burning, redness and desquamation of the skin. During the period of the dermatitis and for about three weeks subsequently, three differential counts showed from 8 to 12 per cent. polymorphonuclear eosinophils, while the white blood count varied between 5,600 and 7,000. Because of his intolerance to arsenic, the patient was placed on a regimen of potassium bismuth tartrate, 0.2 gm. intramuscularly, once a week. March 28, the spleen was no longer palpable even with deep inspiration. April 8 and ten days later, 0.3 gm. doses of neo-arsphenamin were given, resulting in the reappearance of a slight arsenic dermatitis. May 1, the red blood cell count was 4,050,000; hemoglobin, 96 per cent. (Dare), and white blood cell count, 6,500. The differential count was normal except for the reappearance of an eosinophilia of 6 per cent. The blood Wassermann reaction, as on several previous occasions, was strongly positive. Aside from the remains of the dermatitis, the patient presented no abnormality and considered himself in excellent condition.

SUMMARY

In this unusual case, there was marked splenomegaly and a high lymphocyte count improving with roentgen-ray therapy, and later, reappearance of splenomegaly, secondary anemia, leukopenia, enlarged liver and jaundice, and the discovery of a positive Wassermann reaction with rapid and marked improvement with antisyphilitic treatment.

436 Peachtree Street.

A CASE OF CYSTICERCUS OF THE SKIN

Zach B. Coblentz, M.D., Santa Maria, Calif.

A man, aged 25, a Mexican, while working in the lettuce fields, noticed, July 10, 1925, an inability to talk, as if his tongue was paralyzed. He then became unconscious for a period of forty-five minutes. During this attack there was marked dyspnea. There was no frothing at the mouth; the eyes were closed; he did not bite his tongue, and there was no muscular twitching. All of these details were reported to me by the foreman, on my arrival.

I found the patient sitting up; there was some dyspnea. A hasty examination revealed nothing abnormal. The next day the patient came into my office, and a thorough examination disclosed the patient to be normal, except for several freely movable nodules about 1 cm. in diameter lying subcutaneously and apparently not attached to the underlying tissues. The urine was normal, and a blood smear showed the normal ratio. There were nine of these nodules distributed over the chest, three on the arms and one on the neck. None at all appeared from the waist line down. Under procain, one of the nodules was removed. On removal, an incision into it showed a clear fluid. The capsule was sent to Dr. William Ophuls, who reported that it was an ovoid cyst about 1 cm. in diameter, containing the head of a tapeworm and surrounded by a dense fibrous capsule; cysticercus, subcutaneous tissue of chest wall.

The patient had always enjoyed good health. He had never had any tenia, as far as I am able to ascertain. Requests for specimens of feces have been ignored.

The patient is not of the nervous type, never had any such attacks before, and has been working in the fields for years. It is certainly suggestive of a cysticercus in perhaps the fourth ventricle.

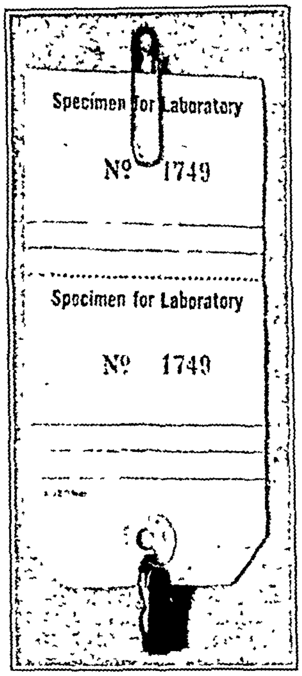
I am reporting this case because, in reading the literature, I have noticed the infrequency with which cysticercus of the skin is encountered.

THE IDENTIFICATION OF SPECIMENS FROM THE OPERATING ROOM *

WILLARD S. HASTINGS, M.D., ROCHESTER, N. Y.

A prominent surgeon who is unusually familiar with laboratory problems, when visiting this hospital recently, showed an unexpected interest in the system employed for the identification of specimens sent from the operating room to the laboratory, and commented on the usual lack of such a plan elsewhere. On having our attention thus drawn to the matter, we have not been able to recall seeing anything of the sort in use in other places and therefore venture a brief description, though it is such an obvious application of methods familiar in other fields that no report of it had previously been contemplated.

The opportunities for serious confusion, loss and delays, with consequent damage to the specimen, that may occur between the operating room and the laboratory are too evident to need enumeration. In spite of rather rigid rules intended to keep a specimen and its history sheet together, there were several instances in the past which might have been more unfortunate than they were. To avoid these a tag, easily separable into two parts bearing duplicate numbers, has been provided. A spring clasp, or "card-holder" (Dennison's No. 46), is hooked into the eyelet as illustrated, and an ordinary paper clip provided for the opposite end. The card-holder was selected after some search for a clasp which was to be found in the stores and which could be attached to the tag easily, and could then be fastened with equal ease on the edge of an enameled specimen dish, on the lip of a bottle or to a gauze package, or bitten into the edge of a cork. It has proved very satisfactory, though a similar clasp bearing something in the nature of a paper clip in place of the hook on this one would be an improvement.



Tag with card-holder and clip as used for the identification of laboratory specimens.

A few tags thus equipped are always available in the operating room. Whenever a specimen is ready, a tag is torn in two and the clasp end attached to the specimen dish, which is sent to the laboratory at once, or as soon as any one can be spared for the purpose. The opposite end of the tag is clipped to the operation sheet. When the latter is made out after the operation, a specimen sheet is also filled in with data necessary for the proper study of the specimen, and the tag transferred to this sheet and sent to the laboratory. Lines are provided in both halves of the tag for any special instructions. For instance, if a specimen is to have a culture taken, it should be so marked to avoid its being placed at once in fixing solution. The numbers on the tags are used only for the temporary purpose of identification, and no attempt is made to keep them in accurate sequence, though it has been found convenient to have them so in a general way.

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* From the Department of Laboratories, Highland Hospital.

Testicular and Ovarian Medication Ineffective.—Extracts of ovary and testis produce no noticeable effects in health or disease when given by mouth. When administered subcutaneously the commercial preparations appear to be for the most part inactive, and, at the best, only produce a slight irritant effect, just as do extracts from all kinds of organs and tissues.—Vincent, Swale: *Proc. Royal Soc. Med* **18**:32 (June) 1925.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PROTEIN S. M. A. (ACIDULATED).—A modified milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 Gm. contains approximately protein (of milk), 35 Gm.; S. M. A. fat (consisting approximately of tallow oil 0 to 10 per cent.; coconut oil, 15 per cent.; cacao butter, 20 per cent.; cod liver oil, from 7.5 to 12.5 per cent.; tallow, from 45 to 55 per cent.), 22 Gm.; carbohydrate (lactose), 28 Gm.; ash, 6 Gm.; moisture, 2 Gm.; desiccated lemon juice, equivalent to 16.7 Cc. of fresh juice. The content of lactic acid is regulated so that when the product is diluted according to directions the liquid will have a p_H 4.6.

Actions and Uses.—Protein S. M. A. (acidulated) is stated to differ from protein milk in that, when prepared according to directions, it is higher in protein and lower in carbohydrate. Its use in the feeding of infants is proposed as a means of checking diarrhea; in malnutrition and marasmus, and the feeding of prematurely born infants needing a high caloric intake.

Dosage.—For use, one ounce of protein S. M. A. (acidulated) is mixed with 9 fluidounces of warm water; first a smooth paste is made with a little warm water and then the remainder is added with thorough stirring. The mixture is added to the diet in increasing quantities as indicated; carbohydrates may be added.

When diluted according to directions the mixture contains protein, 3.5 per cent.; fat, 2.2 per cent.; carbohydrate, 2.8 per cent.; ash, 0.6 per cent.; it has a p_H of 4.6 and represents 50 calories per hundred cubic centimeters (15 calories per ounce).

Manufactured by the Laboratory Products Co., Cleveland. No U. S. patent. U. S. trademark applied for.

TETRABROMOPHTHALEIN SODIUM (Formerly called Tetrabromphenolphthalein Sodium, see New and Nonofficial Remedies, 1925, p. 141).

Bromeikon.—A brand of tetrabromophthalein sodium-N. N. R.

Manufactured by the Mallinckrodt Chemical Works, St. Louis. No U. S. patent or trademark.

Bromeikon, 5 Gm. Ampules.

TYPHOID VACCINE (See New and Nonofficial Remedies, *1925*, p. *360*).

H. K. Mulford Co., Philadelphia.

Typho-Bacterin (See New and Nonofficial Remedies, 1925, p. 363).—Also marketed in packages of thirty 1 Cc. vials (M193-5) (hospital size), being ten sets of three immunizing doses containing, respectively, 1,000, 2,000 and 2,000 million killed typhoid bacilli.

NORMAL HORSE SERUM (See New and Nonofficial Remedies, *1925*, p. *329*).

Eli Lilly & Co., Indianapolis.

Normal Horse Serum.—The serum of the blood of the normal horse obtained in a sterile manner and passed through a Berkefeld filter. Marketed in packages of one syringe containing 10 Cc.; also in packages of one vial containing 20 Cc.

PERTUSSIS BACILLUS VACCINE (See New and Nonofficial Remedies, 1925, p. 353).

Eli Lilly & Co., Indianapolis.

Pertussis Vaccine.—A suspension of killed *Bacillus pertussis* in physiological solution of sodium chloride, preserved with 0.3 per cent. of cresol. Marketed in packages of four 1 Cc. vials containing, respectively, 250 million, 500 million, 1,000 million and 2,000 million killed bacteria per cubic centimeter; in single 5 Cc. vial packages containing 2,000 million killed bacteria per cubic centimeter; in single 20 Cc. vial packages containing 2,000 million killed bacteria per cubic centimeter; and in packages of four 1 Cc. vials, each containing 2,000 million killed bacteria per cubic centimeter.

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SATURDAY, OCTOBER 10, 1925

SOME FUNDAMENTAL FEATURES OF THE CIRCULATION

A conspicuous feature of the modern application of the sciences in the service of mankind has been the development of quantitative methods and the extension of their use in many fields. The physician of today deals with relatively exact figures in connection with basal metabolism, the circulating sugar and the nitrogenous catabolites of the blood, the respiratory gases, hydrogen ion concentration of tissue fluids and artificial solutions, the efficiency of the optical and auditory outfits of the organism, and the pressure of the blood—to cite illustrations of measurements unknown to physicians of a generation or two ago. Interest in the qualitative aspects of life has become supplemented by a realization of the advance that a better quantitative knowledge of the functions of the body is likely to promote.

It has recently been remarked that the circulation, respiration, production of heat, and performance of work are all merely parts of the one general process of the body's energetics. With respect to most of these factors, well established data of widespread applicability are now available. Henderson and Haggard[1] of Yale University have pointed out, however, that the circulation has heretofore been so nearly entirely unmeasurable that few well defined terms, and no system, are available in which to present data. By way of contrast, they remind us how in the closely related field of the respiratory exchange and indirect calorimetry the central conception is that of the basal metabolism: the volume of oxygen consumed and the corresponding number of calories produced per square meter of surface in a given time, at rest in the postnutritive state. Thanks to these resourceful physiologists, one of the outstanding unsolved problems of the circulation, that of the volume flow of blood per minute, has been opened to attack with greater prospects of real success than ever before. They have developed a simple and fairly accurate method for measuring the circulation in man and thus of ascertaining the functional efficiency of the circulation in persons under all sorts of conditions. The details of the novel procedure, which includes measurements of the absorption of the slightly soluble vapor of ethyl iodid and estimation of its comparative content in the inspired air and the arterial blood, are too technical to warrant discussion here. The outlook for securing dependable measurements of the circulation on the untrained human subject with a minimum of inconvenience is highly encouraging.

Some of the results already obtained are rather unexpected. They show that in healthy, vigorous persons the circulation performs its respiratory functions with a remarkable high efficiency and thereby supplements the work of respiration most advantageously. According to Henderson and Haggard, to make the adjustment necessary when muscular work is performed and particularly to meet the increased demand for oxygen, the circulation has three reserves: increase of the pulse; increase of the heart stroke volume; and increase of the arteriovenous oxygen difference, or percentage utilization. They assert that for an exertion no greater than the ordinary activities of life, increase in the pulse is the chief compensatory factor. As soon, however, as such moderate activity is exceeded, increase of stroke volume and of oxygen difference is also involved, along with a further increase of the heart rate. The increase of the stroke, they find, seems to reach its limit at a "stroke index" of about 3.5 c.c. per kilogram of body weight, an oxygen consumption of about 2 liters, and a circulation of about 35 liters per minute. Beyond that point the oxygen difference in the blood increases because the circulation does not. The strain on the subject then increases to his limit of power. The demand is satisfied from the third reserve—the oxygen store in the blood; but this involves a decrease of the partial pressure of oxygen in the tissues, and an increasing oxygen deficit. The latter, Henderson and Haggard conclude, has to be made good after the termination of the period of work.

The arteriovenous oxygen difference expresses the relation of the activity of the circulation to the intensity of the calorific and respiratory processes. When the usual volume of blood per minute for each unit of metabolism transports the oxygen required for the latter from the lungs to the tissues, the arterial blood must contain about 4 per cent. by volume more oxygen than the venous. In other words, the circulation is ordinarily so large in relation to the oxygen consumption of the body that the venous blood returning to the right side of the heart contains on the average only 4 per cent. by volume less oxygen than the arterial blood. Henderson and Haggard estimate that the blood stream pumped by the heart is about twice as large as was formerly supposed. During bodily rest its volume in liters per minute is about equal to the volume of air breathed in that time. During exercise, respiration may increase eight or ten fold, and the circulation four or five fold. It is estimated that the maximum power of the heart is about equal to the amount of work involved in lifting the weight of the body one meter per minute.

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[1] Henderson, Yandell; and Haggard, H. W.: The Circulation and Its Measurement, Am. J. Physiol. 73: 193 (June) 1925.

Certain incidental observations of the circulation are of clinical interest. Hot baths quicken the circulation without greatly increasing the oxygen consumption. In this way they reduce the "oxygen difference" and thus raise the pressure of oxygen in the tissues. During vigorous exercise, the increase in the circulation may not keep pace with the oxygen consumption, so that the oxygen difference increases because the circulation does not. In patients with heart disease, the inefficiency of the circulation may show itself in the increase of the arteriovenous oxygen difference above the normal value. Hence, Henderson and Haggard point out, the capacity of the circulation to keep the oxygen difference down, and thus to keep the oxygen pressure in the tissues up, appears to be the limiting factor in the maximum power that can be sustained by athletes at one end of the scale, and by patients with heart disease at the other.

THE AGING OF NATURAL MINERAL WATERS

When science and traditional experience clash, it is often well to preserve an open mind, for our knowledge is finite, and, while carefully garnered facts have a permanence of value that cannot easily be thrust aside, the new acquisitions sometimes compel a revision of the point of view or permit a different approach to a debated subject. The coming years are likely to afford various illustrations of this in such poorly cultivated fields as climatology. There is a long series of traditions and a not inconsiderable group of empirically attested opinions regarding the relations of light, air and water to human well being. Some of them are too deeply rooted to be easily brushed aside even when no plausible explanation is at present forthcoming. Others have yielded to scientific investigation to the extent of disclosing an interpretable justification for the long held beliefs. Sunshine embodies forms of radiant energy that the laboratory has clearly demonstrated to be therapeutically potent. There are less well defined effects of air and water on the metabolism and circulation. Some of them are not more elusive than the definition of vigor itself.

The discovery of radioactivity led to the assertion that it was responsible for the alleged qualities of waters long reputed to have healing powers. The presence of radium emanation could actually be measured; and it gave a plausible basis for the claims of therapeutic virtue. In many instances, however, the radioactivity, though measurable, was so slight as to tax one's credulity with respect to any unusual reaction on the body. This has not deterred the quack from capitalizing a scientific fact and transforming it from minor into major significance. It has been urged that the curative virtues disappear in time from the water after its collection—a phenomenon that can perhaps be correlated with the fact that the emanation has a limited life and presently disappears. Hence there is plausibility for the belief that certain mineral waters lose their potency through aging.

There are other "healing springs," especially those containing iron, which exhibit their curative properties only when the water is taken fresh, yet show no radioactivity. Their potency has been ascribed to dissolved mineral salts. Baudisch and Welo[1] have pointed out that it is difficult to reconcile this explanation with the fact that in some cases, when the salts are separated from the waters and again redissolved, the new mineral water exhibits little and in many cases no healing action whatever. Studies recently completed by these chemists at the Rockefeller Institute for Medical Research indicate that certain iron compounds may undergo unique transformations on standing.[2] These varying properties evidently involve changes in the molecular configuration that are not expressed in the ordinary composition of the substances. It is demonstrated that some of the salts dissolved in water as they come out of the deep interior of the ground are in a particularly "labile configuration." Baudisch and Welo believe that in the aging process there is a rearrangement in space of the atoms, molecules, and groups of the latter. That this is not mere assumption is indicated by the demonstrable changes in properties. The still "active" iron ions have various properties in common with hemoglobin or blood iron; in fact, they may promote bacterial growth like the latter. The inactive or "aged" iron salts show none of these properties, which are so important biologically. Certain of their catalytic actions are speedily lost on standing.

These findings may presently give some insight into the mechanism of therapeutic action and its loss. Baudisch and Welo draw an analogy between certain functions of hemoglobin and the way that the active iron salts in fresh mineral waters may affect the life processes of body cells. In fact, they believe that such biologic potencies are not confined to the iron alone. Such speculations are interesting, but they must not be allowed to acquire unwarranted significance to the extent of exploitation by the unscrupulous. Experience teaches the danger of allowing fact and fancy to mingle too intimately—particularly when gullible persons are longing for health.

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[1] Baudisch, O., and Welo, L. A.: On the Aging of Natural Mineral Waters, J. Biol. Chem. 64:771 (July) 1925.

[2] Baudisch, O., and Welo, L. A.: On the Aging of Ferrous Hydroxide and Ferrous Carbonate, J. Biol. Chem. 64:753 (July) 1925.

NIGHT BLINDNESS AND NUTRITION

It has become well established in recent years that certain disorders of the eye may be closely associated with malnutrition. The possibility of such an interrelationship was long suspected, but it remained for the more modern methods of investigation in the field of nutrition to replace conjecture by scientific demonstrations. An illuminating illustration is furnished by the experimental production of xerosis conjunctivae, or xerophthalmia, under conditions of diet in which there is a deficiency of vitamin A. The eye symptoms thereby observed in animals are identical in various respects with those noted in man; and they are relieved or averted, as the case may be, by similar therapeutic measures that depend on supplying the missing food factor.

There is another ocular disorder, night blindness, that has been ascribed to faulty diet among other explanations of its etiology. We are not referring here to congenital night blindness, or to the night blindness in retinitis pigmentosa or detachment of the retina, but to difficulty of adapting the faculty of vision to faint illumination. It is usually most pronounced when the eyes of the susceptible persons have been exposed to intense light, and becomes ameliorated after a period of rest in darkness. Several reasons have been cited in the past in favor of the assumption that this night blindness, or hemeralopia, may be associated with malnutrition. It has been discovered under conditions of presumably bad nourishment among prisoners, slaves, and sailors on long sea voyages. Observations of this sort are as recent as the period of the World War. An alternative view ascribes hemeralopia more exclusively to the effect of prolonged exposure to bright sunlight.

The fact that night blindness has been reported in certain patients suffering from xerophthalmia has been responsible for renewed attempts to ascertain the precise etiology of the hemeralopia. Holm[1] of the University Institute of Hygiene at Copenhagen has succeeded in demonstrating it experimentally in animals in which an incipient avitaminosis was induced by rations devoid of vitamin A. It is under such conditions of inadequate diet continued over a longer period that xerophthalmia develops in the same species. As in the supposed alimentary hemeralopia of man, there is in rats a delayed adaptation to darkness, but no lack of adaptation. The hemeralopia appears very early during the avitaminosis, as is also true in man. Whether at later stages of the disease an absolute hemeralopia with an essential limitation of the adaptation can develop has not been ascertained by Holm. However, his experiments indicate that the eyes of affected rats behave about like human eyes with respect to the boundary between night sight and day sight or, as he expresses it, with respect to the point at which the uvea begins to function.

An interesting concomitant of the experimentally produced hemeralopia of rats has just been demonstrated by Fridericia and Holm,[2] likewise at Copenhagen. Such animals, deprived of vitamin A under conditions that ultimately lead to the exhibition of xerophthalmia, are found to regenerate their visual purple after exposure to light more slowly than properly nourished rats do. This abnormality in the restoration of bleached visual purple seems to be somewhat specifically related to the lack of vitamin A; at any rate, it has not been found in malnutrition due to a lack of vitamin B. Whether the night blindness described by Holm depends on a defect in the function of the visual purple cannot be decided at present. The defect is observed only after the eyes have been exposed to the action of intense light. Night blindness behaves in the same way. Physiologists are still at sea regarding the purpose of the visual purple. It is no longer assumed to be required for the ordinary faculty of vision, although there are suggestions that twilight vision is dependent on the visual purple. In any event, the discovery of a number of striking ocular manifestations associated with a well defined dietary deficiency cannot fail to give impetus to progress in their identification and treatment. A good beginning has already been made.[3]

IRON IN THERAPEUTICS

The United States Pharmacopeia and the National Formulary contain sixty-four preparations of iron. The chemical fate and the therapeutic efficiency of medicinal iron, nevertheless, have long been uncertain, and debate has been proportionately voluminous. Cushny[4] well sums up what is known of the fate of medicinal iron preparations in the body, pointing out that they probably undergo changes in the stomach and then pass into the duodenum, from which the great bulk is carried on into the lower parts of the intestine. Some of the iron is absorbed by the epithelium and leukocytes in solid form and perhaps in solution and then is deposited in the spleen, where it may undergo some changes in form before being taken up by the blood and deposited in the liver and perhaps in the bone marrow. Cushny says:

> Where the supply of iron has been inadequate for the formation of hemoglobin, the originally inorganic iron is probably worked into higher forms and eventually into hemoglobin in the liver, and it seems likely that ferratin is one of the intermediate steps in this synthesis. When there is no deficiency of iron for the formation of hemoglobin, the liver slowly yields its store of iron to the blood, which carries it to the cecum and large intestine, by the epithelium of which

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[1] Holm, E: Demonstration of Hemeralopia in Rats Nourished on Food Devoid of Fat Soluble A Vitamin, Am. J. Physiol. **73**: 79 (June) 1925

[2] Fridericia, L S, and Holm, E: Experimental Contribution to the Study of the Relation Between Night Blindness and Malnutrition: Influence of Deficiency of Fat Soluble A Vitamin in the Diet on the Visual Purple in the Eyes of Rats, Am. J. Physiol. **73**: 63 (June) 1925.

[3] Why Xerophthalmia Deserves Attention, editorial, J. A. M. A. **82**: 1048 (March 29) 1924

[4] Cushny, A. R: Text Book of Pharmacology and Therapeutics, Ed 8.

it is finally excreted. It is to be noted that the iron absorbed does not increase the amount of iron in the urine, bile or other excretions. The ordinary preparations of iron follow the same course in the tissues as the more complex compounds which exist in foods.

As may be seen, even this is qualified information. Actual chemical evidence has been difficult to get, because iron is normally present in the tissues, and the body utilizes quantitatively little of the iron that may be introduced therapeutically or in food.

It seems possible now, however, that much of the therapeutist's uncertainty may be cleared up. Williamson and Ets,[5] on the basis of experiments involving the use of large numbers of nearly identical animals over long periods of time under uniform conditions, have obtained results which merit consideration because of the controlled conditions under which they were secured. Inorganic iron, whether given by mouth, subcutaneously or intravenously, they found, is absorbed and may be found especially in the liver and spleen, but is not converted into hemoglobin. The futility of prescribing iron for anemia following hemorrhage is shown by the fact that animals made anemic by one or several large bleedings do not recover any more rapidly when inorganic iron is given. The efficiency of food iron seemed pronounced, and animals on a diet containing food iron recovered rapidly from hemorrhages that removed an amount of iron greater than exists in the entire body outside the blood. If the work of Williamson and Ets is confirmed, the next "Useful Drugs" may contain even fewer preparations of iron than the sixteen listed in the present new edition.

Current Comment

RELAXATION AND THE KNEE JERK

The prompt contractile response, or muscular "jerk," brought about by striking a stretched tendon is a physiologic phenomenon familiar to every one who is concerned with neuromuscular diagnosis. The widely used knee jerk test has been employed for half a century by clinicians. The responsive jerk has been regarded as the most refined measure available for judging the tone of muscle, and it is often used as an index of the functional condition of the nervous system. Early students of the reaction reported that the intensity of the knee jerk usually decreased during cerebral inactivity. It has recently been pointed out,[6] however, that during "relaxation" as ordinarily produced in clinical examinations the knee jerk is not diminished; in fact, it is usually increased. That this is due to actual failure to relax is shown by careful observations on persons specially trained in relaxation. In them the knee jerk really decreases parallel with advanced relaxation. In fact, by voluntary relaxation in the waking state one may attain a degree of neuromuscular tonus lower than that of light sleep, so that entire abolition of the knee jerk may occur in some cases. Jacobson and Carlson, who conducted the tests at the University of Chicago, assert that there is usually a "hang-over" of the effects of extreme relaxation, the jerk tending to remain diminished even after the person is instructed to cease relaxing; so that only reinforcement or moving the leg brings the response back to normal. Sometimes there is a diminution of the respiratory and heart rate. If it becomes clearly established that diminution of the knee jerk to the point of actual disappearance furnishes an objective criterion of the relative completeness of relaxation, the familiar test may acquire a clinical application not heretofore appreciated. This is especially true if, as has lately been suggested, an extreme degree of neuromuscular relaxation is effective in the therapy of certain nervous conditions.[7]

THE BASAL METABOLISM OF ORIENTALS

The measurement of the total metabolism, or the energy exchange of the body, affords an index of the food requirement from the quantitative point of view. The calory needs are modified by a variety of factors, among which muscular activity, size and the intake of food itself exercise pronounced effects. To determine whether disease also is involved it has become necessary to exclude the various extrinsic influences as far as possible before attempting any estimate of the fundamental transformations of matter in the organism. Hence the current practice of measuring so-called basal metabolism, that is, the energy exchange, during a period in which food is not being digested and in which voluntary activity is reduced to a minimum. The oxygen consumption is consequently ascertained in the person at complete rest in the postprandial condition. Even here it has been found that other factors inherent in the individual must be reckoned with. Size is obviously the foremost, but age and sex also have modifying influences on the intensity of the metabolism. It is accelerated in youth and relatively lower in women than in men. Investigators [8] who have studied Oriental women students in our American colleges have recently reached the conclusion that a racial effect in the direction of a lower metabolism must be recognized with the Chinese and Japanese. Apparently transplanted Orientals retain their inherited low metabolism, so that American and English physiologic standards should not be applied to them, particularly in the diagnosis of metabolic diseases. Corresponding with a basal metabolism averaging 10 per cent. below the best prediction standards, the Oriental young women studied showed a low pulse rate and a very low vital capacity, though their condition of nutrition seemed to be normal. Hence we may ask with Earle [9]: "Has the rush of Western civilization produced a higher metabolic rate? Is the low metabolic rate of the Chinese a physiologic expression of their more philosophic outlook on life?"

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[5] Williamson, C. S., and Ets, H. N.: Value of Iron in Anemia, Arch. Int. Med. **36**: 333 (Sept.) 1925.

[6] Jacobson, E., and Carlson, A. J.: The Influence of Relaxation upon the Knee Jerk, Am. J. Physiol. **73**: 324 (July) 1925.

[7] Jacobson, E.: New York M. J. **111**: 419, 1920; J. Nerv. & Ment. Dis. **53**: 282 (April) 1921; Illinois M. J. **39**: 243 (March) 1921.

[8] MacLeod, G.; Crofts, E. E., and Benedict, F. G.: The Basal Metabolism of Some Orientals, Am. J. Physiol. **73**: 449 (July) 1925.

[9] Earle: The Caduceus **1**: 85, 1922.

HEAT REGULATION AND WATER EXCHANGE

Evidence has accumulated in recent years to indicate that the concentration of the circulating blood varies in definite ways in response to changes in its temperature or in that of the environment of the body.[1] Dilution of the blood occurs when the physiologic circumstances demand a removal of heat from the organism. The action of many antipyretics involves a corresponding "mobilization" of water in the blood. The reverse response to cold has now been demonstrated by Barbour and Hamilton[2] of the University of Louisville to be due to an actual anhydremia rather than to any movement of blood cells that might simulate a concentration. The change is quick and reversible. Since the serum as well as the whole blood concentrates, the fluid movement out of the blood is clearly established, when external cold is applied to the exterior of the body. The Louisville physiologists[3] have established, further, that the tissues of the cooled surfaces contain more moisture than those of the uncooled. It appears, from the new analyses, that the fluid leaving the blood in the regulation of the body against a cold environment is diverted chiefly to the cooled skin, subcutaneous tissues and muscles. This results, according to Barbour and Hamilton, not only in a reduction of peripheral blood flow through concentration and a consequent saving of heat, but also in the production of an increased thickness of the insulating tissues. The more deeply lying parts are thus better protected from heat loss by the additional "padding" with water in the superficial layers.

Association News

THE DALLAS SESSION

Local Committee of Arrangements

Dr. E. H. Cary, Medical Arts Building, Dallas, Texas, on nomination of the Dallas County Medical Society, has been chosen chairman of the Local Committee of Arrangements. The names of other members of this committee and of its subcommittees will be published later.

Golf Special for Dallas Session

When the American Medical Association met in San Francisco in 1923, an "American Medical Association Golf Special" provided an unusual feature. The party left Chicago and made the trip to San Francisco by easy stages, playing golf each day in a different city. A similar special, limited to 125 physicians, will be conducted to the Dallas session. According to the schedule the train will leave Chicago, Sunday, April 11, at 6 p. m., arriving in Nashville, Tenn., Monday morning; golf will be played at Nashville. The train will leave that night and arrive the next morning in Biloxi, Miss., where the golfers will play; the next day golf will be played in New Orleans, the day following in Galveston and then in San Antonio, the train arriving in Dallas on Saturday, April 17. The trip also includes special arrangements for automobile trips, sea bathing and dancing for ladies and children who may accompany physicians as guests. The cost of the trip is $215, including round trip tickets from Chicago by special train and returning by direct route through St. Louis or Kansas City. Meals, compartment, green fees, caddy fees, automobile charges and tips are included in this charge. Complete information and application blanks may be secured from Dr. F. C. Warnshuis, Powers Theater Building, Grand Rapids, Mich.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Bacterial Rat Exterminators Forbidden.—The state board of health recently ruled to forbid the sale or exposure for sale in the state of any of several alleged rat exterminators, the efficiency of which depends on cultures of bacteria which may contaminate human food. Experiments conducted under the auspices of the state board failed to demonstrate any great efficiency in the so-called exterminators but showed that they might lead to the production of a chronic carrier state in rodents of bacteria which are known to cause food poisoning.

Mr. Aycock Was Fined.—Charles F. Aycock of the so-called Aycock Medical Institute, Los Angeles, was arrested, August 1, it is reported, on a charge of violating the medical practice act. He pleaded guilty and paid a fine of $100. Aycock claims to have protected himself by applying for a chiropractic license under which he could examine patients. According to Nostrums and Quackery, when Aycock was county treasurer of Boone County, Arkansas, he was arrested on a charge of embezzlement; released on bail; forfeited his bail by leaving the state but was later captured when about to sell a fake gold mine. It is further related that he was sentenced to the penitentiary for five years on a charge of embezzlement but was pardoned after one and a half years.

COLORADO

State Medical Election.—At the annual meeting of the Colorado State Medical Society, Colorado Springs, September 29-October 1, Dr. George A. Boyd, Colorado Springs, was installed as president; Dr. George H. Curfman, Salida, was elected president-elect; Drs. Edward Delehanty, Denver, Walter E. Hays, Sterling, Edward E. H. Munro, Grand Junction, and Lanning E. Likes, Lamar, vice presidents; Dr. Frank B. Stephenson, Denver, secretary; Dr. William A. Sedwick, Denver, treasurer, and Dr. Charles N. Meader, Denver, and Dr. Lewis H. McKinnie, Colorado Springs, delegates to the American Medical Association.

CONNECTICUT

Freshman Class at Yale.—From more than 400 applicants fifty-two students have been selected as freshmen in the Yale School of Medicine this year. According to Dean Winternitz one third of the class is from Connecticut and eighteen of them are Yale men. Those chosen for the class completed their undergraduate work at twenty-six colleges and universities.

Dr. Ruggles Goes to Yale.—Dr. Arthur H. Ruggles, director of the Butler Hospital, Providence, R. I., has obtained a year's leave of absence to accept an appointment as consultant in mental hygiene to the department of university health and as lecturer in psychiatry in Yale University School of Medicine for a period of one year. The university has also nominated Dr. Ruggles to the board of directors of the New Haven Hospital as psychiatrist to the hospital and dispensary. Dr. Ruggles served during the World War as consultant in neuropsychiatry and was decorated with the Croix de Guerre by the French government.

DISTRICT OF COLUMBIA

Increase in Medical Inspection Service.—An increase in the medical inspection service for the public schools of the District of Columbia was requested at a conference between General Lord, chief of the budget, and a special public health committee from the Monday Evening Club. Facts were presented to show General Lord that the school medical inspection service in Washington is far behind similar work in other large cities and that increased appropriations for this work are essential to the health of school children. The conference followed the receipt, Thursday, of authoritative information that the Budget Bureau had disapproved almost all of the increased appropriation which the board of education and the District commissioners had sought to improve the school medical service. Although budget officials refused to give assurance that the conference would result in a new decision to approve increased appropriations, Dorsey W. Hyde, Jr., president of the Monday Evening Club, declared that the interest shown by General Lord and his aides gave every hope that additional funds would be provided. The program outlined by the club at this conference has been endorsed by the Chamber of Commerce, the Board of Trade, Medical Society of the District, Instructive Visiting Nurse Society, Tuberculosis Association and many other organizations. Mr. Hyde declared, "we are not launching a fight on this matter, but simply want General Lord and other officials and the people of the District generally to know the facts in the case, confident that betterment will follow."

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[1] Barbour, H. G.: Physiol. Rev. **1**: 295 (April) 1921.

[2] Barbour, H. G., and Hamilton, W. F.: Heat Regulation and Water Exchange, VII, Evidence That Cold Anhydremia Is Due to Loss of Fluid from the Blood Stream, Am. J. Physiol. **73**: 315 (July) 1925.

[3] Barbour, H. G., and Hamilton, W. F.: Heat Regulation and Water Exchange, VIII, Fate of Fluid Leaving the Blood in Cold Anhydremia, Am. J. Physiol. **73**: 321 (July) 1925.

GEORGIA

Personal.—Dr. Lewis M. Gaines, Atlanta, has resigned as associate professor of neurology and psychiatry at Emory University School of Medicine, to devote his time to internal medicine and neurology.——Dr. John P. Kennedy has been reelected health officer of Atlanta for two years. The Fulton County Medical Society sent a delegation in appreciation of Dr. Kennedy's twenty-five years' service to endorse his reelection.

Society News.—At the recent meeting of the Fulton County Medical Society at the Academy of Medicine, Atlanta, Dr. Bertram H. Wagnon spoke on "Granuloma Inguinale Treated by Intravenous Injections of Tartar Emetic"; Dr. William R. Smith reported a case of "Perthes' Disease."——Brooks County Medical Society was recently host to the Thomas and Lowndes County medical societies at the Quitman County Club, Quitman. Among the speakers were Dr. Frank K. Boland, president of the Medical Association of Georgia; Dr. Joseph A. McGarity, Atlanta; Dr. Charles W. Roberts, Atlanta; Dr. John T. King, Thomasville, and Dr. Charles H. Watt, Thomasville.

ILLINOIS

Society News.—Dr. Arial W. George, Boston, will address the Central Illinois Radiological Society, Quincy, October 12, on "The Present Status of the Gastro-Intestinal Examination by Roentgen Ray." A dinner and reception will be given preceding the meeting.

Scarlet Fever at Elgin.—Elgin was reported to have had twenty-four cases of scarlet fever, September 28, making a total of 111 cases thus far this year, which exceeds the records for the last five years. While there were only forty-eight cases of scarlet fever in Elgin last year, there were four deaths. There have been no deaths in 1925 from scarlet fever.

Diphtheria Trends Upward.—Since September 1 the prevalence of diphtheria in Illinois has doubled; about 100 cases are reported each week. This is the highest incidence since April and is double the average incidence in August; until late in the winter, the state commissioner of health says, an average of from 150 to 200 cases will be reported a week if the incidence runs true to form. Last year diphtheria caused 470 deaths in Illinois, most of the victims being children under 6 years of age. The state department of public health distributes antitoxin and toxin-antitoxin gratuitously to all citizens of the state who need and desire it.

Chicago

Dr. Coulter in New Position.—John M. Coulter, Ph.D., for many years head of the department of botany at the University of Chicago, began his work as a member of the staff of the Boyce Thompson Institute for Plant Research at Yonkers, N. Y., October 1. The institute which was founded last year by Colonel Thompson is devoted especially to the study of diseases of plants and flowers.

Society News.—The first fall meeting of the Chicago Ophthalmological Society will be held at the Hotel Sherman, October 19; there will be a dinner at 6:30 as an informal reception for members of the American Academy of Ophthalmology and Otolaryngology. The scientific program will include discussions on "The Motor Anomalies of the Eye," and visiting members of the American Academy are invited to participate.——The first fall meeting of the Chicago Roentgen Society will be, October 9, at the Virginia Hotel. Dr. Arthur U. Desjardins, Rochester, Minn., will speak on "Radiotherapy at Low and Moderate Voltages," and Dr. Carroll E. Cook will report a case of osteitis deformans associated with osteogenic sarcoma.——Dr. Arthur J. Cramp, director, Bureau of Investigation, American Medical Association, will speak before the Chicago Laryngological and Otological Society, Hotel Sherman, October 19, on "Fake Aids for Hearing," illustrated by lantern slides, and Harvey Fletcher, head of the research department, Bell Telephone Laboratories, on "Interesting Data on the Improved Audiometer."

INDIANA

State Medical Election.—At the recent annual meeting of the Indiana State Medical Society, Fort Wayne, Dr. Charles N. Combs, Terre Haute, was elected president; Drs. Herman M. Baker, Evansville, Donald C. McClelland, Lafayette, and Angus C. McDonald, Warsaw, vice presidents; Dr. William A. Doeppers, Indianapolis, treasurer, and Drs. George F. Keiper, Lafayette, Albert E. Bulson, Jr., Fort Wayne, and David Ross, Indianapolis, delegates to the American Medical Association. The next annual meeting will be at West Baden in 1926.

KENTUCKY

Antirat Campaign.—Dr. Jesse I. Whittenberg, Louisville, is chairman of a committee, it is reported, of 119 physicians (one from each county in the state) and other members which will work in cooperation with the state board of health in a campaign to decrease the rat population of the state. It has been estimated that there are 10,000,000 rats in the city of Louisville.

Alumni Meeting.—The Louisville Alumni will hold their annual reunion and dinner in connection with the meeting of the Southern Medical Association, November 11, at 7 o'clock in the Adolphus Hotel, Dallas, Texas. Notices of attendance should be sent during October to the Dean, School of Medicine, University of Louisville, 101 West Chestnut Street, Louisville, and after November 1 to Dr. Stuart Graves, Adolphus Hotel, Dallas. Tickets will be on sale at the alumni window at registration headquarters, Dallas.

MASSACHUSETTS

Testimonial to Dr. Kelley.—At a meeting called, September 28, in Boston, the executive committee of the Boston Health League which comprises thirty health and welfare agencies, adopted a testimonial as a tribute to the work of the late Dr. Eugene R. Kelley, commissioner of health of Massachusetts, in which, it was said that Dr. Kelley gave his life for the betterment of his fellowmen and that in spite of many difficulties which his position presented, he maintained a spirit of ardent optimism, insisting on the close relationship of public health work to the private practice of social work.

Professor Coolidge Retires.—Dr. Algernon Coolidge, for fourteen years professor of laryngology at Harvard University Medical School, Boston, has retired from that position and been elected professor emeritus. Dr. Coolidge has been associated with the Harvard Medical School for thirty-two years. The appointment of Lemmie R. Cleveland, of Johns Hopkins University, Baltimore, as assistant professor of protozoology at Harvard University Medical School, was also announced, and that of Dr. Fred W. Morse, Jr., as instructor in bacteriology, Dr. Dwight L. Sisco as assistant in industrial medicine and Dr. Reginald M. Atwater, instructor in epidemiology.

MINNESOTA

Business Bans Medicine Shows.—At the request of the business and professional men of the city of Hibbing, a ban has been placed on medicine shows in that city and no more permits to them will be issued. Hibbing has a population of more than 15,000.

Meeting of Resident Physicians.—The annual meeting of the Association of Resident and Ex-Resident Physicians of the Mayo Clinic will be at Rochester, Minn., October 19-21.

A program may be obtained from Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis.

Society News.—At the annual meeting of the Minnesota Academy of Medicine, September 9, Dr. Henry L. Ulrich, Minneapolis, was elected president, Dr. Frank E. Burch, St. Paul, vice president, and Dr. John E. Hynes, Minneapolis, secretary-treasurer (reelected). It was decided to accept the invitation of Dr. Edward S. Judd to hold the November meeting at Rochester.

Dr. Beard Appointed Field Secretary.—The board of directors of the Hennepin County Public Health Association unanimously invited Dr. Richard O. Beard to accept the field secretaryship of the association on a part-time basis. Dr. Beard, who recently retired from active teaching work at the University of Minnesota, has accepted the appointment. He will continue to devote the major part of his time, however, to the direction of the committee on endowment and building funds of the University of Minnesota School of Medicine (The Journal, April 18, p. 1190).

NEBRASKA

Personal.—Dr. Aura J. Miller, Boston, has arrived in Omaha to succeed Dr. John Jay Keegan as associate professor of clinical pathology in the University of Nebraska College of Medicine. The vacancy was due to the appointment of Dr. Keegan as dean of the medical school.——Dr. Claude W. Mason, formerly of Omaha and for nineteen years a medical missionary in the Orient, has returned to Omaha to engage in practice.

Society News.—A joint meeting of the Third and Seventh Councilor District Medical Societies was held at Beatrice, September 10, at which Drs. Palmer Findley, Arthur D. Dunn and Charles W. Pollard conducted dry clinics and spoke on "Precancerous Lesions of the Uterus," "Gastric Physiology and Symptomology," and "Toxemia of Pregnancy," respectively. There was a banquet at the country club in the evening.——At the August 28 meeting of the Eleventh Councilor District Medical Society, North Platte, Dr. Daniel T. Quigley, Omaha, the guest of honor, spoke on "Cancer," illustrated by lantern slides.

NEW YORK

Meeting of Committee on Tuberculosis and Public Health.—The semiannual meeting of the New York State Committee on Tuberculosis and Public Health will be at the Hotel Biltmore, New York, November 19-20. The committee will meet with the advisory Council of the Milbank Memorial Fund which convenes for the purpose of considering the progress of the health demonstrations being made at Syracuse and in New York City under the auspices of the fund. The New York City tuberculosis conference will also be held at the same date and place.

New York City

Macfadden's Americanism Protective League.—One of the latest fads of Bernarr Macfadden is the Americanism Protective League, which is circularizing the public with forms addressed to state legislators asking them to oppose the passage of a medical practice act. Macfadden is said to have organized the league.

Cancer Institute Opens.—The Brooklyn Cancer Institute in the old Cumberland Street Hospital building will open next week with Dr. Charles A. Brown in charge. The board of estimate has approved an appropriation of $15,000 for salaries of the technician and nursing staff. In about another month when reconstruction has been completed, bed cases will be received.

Wesley M. Carpenter Lecture.—Dr. Lewellys F. Barker, Baltimore, will deliver the Wesley M. Carpenter Lecture at the New York Academy of Medicine, Thursday evening, October 15, 8:30, on "The Management of Neurotic Patients." Dr. Carpenter was formerly corresponding secretary of the New York Academy of Medicine and editor of the *New Orleans Medical and Surgical Journal.* In his will he left $5,000 to the academy for an annual lecture.

Dr. Giddings Appointed Superintendent.—The president of the Reconstruction Hospital announces that Dr. Emanuel Giddings, New York, has been appointed superintendent. Dr. Giddings was physician in charge of the Willard Parker Hospital and of the Riverside Hospital; he served as a major with the One Hundred and Second Engineers in France and is now lieutenant-colonel of the Three Hundred and Fiftieth Medical Regiment. The Reconstruction Hospital is devoted to the care and treatment of industrial accidents and diseases.

Personal.—Dr. Richard H. Meade, Jr., has been appointed on the staff of the St. James Hospital, Anking, China, by the Department of Missions of the Protestant Episcopal Church.——Dr. Robert T. Frank, formerly of Denver, Colo., has been appointed gynecologist to Mount Sinai Hospital, New York.——Dr. Alexis Carrel, Rockefeller Institute for Medical Research, returned to New York, September 23, from his annual vacation in France.——Dr. Joseph E. Burns, Goldston, N. C., has been appointed house surgeon at the Willard Parker Hospital.——Dr. Isaac Glassman has been appointed roentgenologist to the Metropolitan Hospital.

Report of East Harlem Health Center.—A recent report called "The House that Health Built" covers the first three years' work of the East Harlem Health Center, in which all local health agencies combined to raise the standards of health in the East Harlem District and to decrease the death rate. Public, private, religious and nonsectarian agencies joined in this plan. From 1921 to 1923 the death rate in the East Harlem District decreased 23 per cent., it is said, while for the city as a whole it decreased only 20 per cent. The long list of agencies that participated in this campaign have combined to conduct neighborhood health demonstrations, prevent tuberculosis, raise nursing standards, give better infant care and instruction in nutrition to children and parents. The campaign has reached 193,055 persons.

Progress of Presbyterian Hospital Fund.—Dean Sage, president of the Presbyterian Hospital, announced, October 2, that $6,250,000 of the $7,000,000 building fund for the new Presbyterian Hospital had been received to date. A committee was formed to speed the raising of the remainder before winter comes. Mr. Sage announced that the two $25,000 gifts made last spring by Miss Annie B. Jennings and Mrs. Walter B. James were to establish two five-bed medical wards as memorials to "the distinguished services of Dr. Walter B. James to the Presbyterian Hospital and to medical science." When the Uptown Medical Center Association, Inc., formed to collect $400,000 with which to build a floor in the hospital and to cooperate in any way possible in its construction, met October 3, it had raised $156,000. The first unit of the new Medical Center is now under construction.

New Campaign to Eliminate Diphtheria.—Dr. Frank J. Monaghan, health commissioner, has announced a new campaign to eliminate diphtheria in the Bellevue-Yorkville district, starting this week, to be conducted by the Milbank Memorial Fund in cooperation with the department of health. It will be in charge of Dr. Leverett D. Bristol, representing the former organization, and Drs. William H. Park and John Oberwager of the health department. All private physicians in the district will be supplied with antitoxin free of charge. Children will be immunized against diphtheria at stations conducted by the health department at 306 Avenue A, 248 East Thirty-Second Street, 241 East Fortieth Street and 322 East Fifty-Ninth Street. The Metropolitan Life Insurance Company has volunteered to distribute in the district 50,000 leaflets on diphtheria published by the Milbank Foundation. The object in distributing antitoxin to private physicians is to enable them to administer it early in the disease.

NORTH CAROLINA

Free Orthopedic Clinics.—The first of the free orthopedic clinics for cripples to be given by the State Division of Rehabilitation was held in the office of the Cumberland County Health Department at Fayetteville by Dr. Alonzo H. Myers, Charlotte; it included seven counties. Clinics are to be held by leading orthopedic surgeons residing in the zones into which the state will be divided. The service is free, the expenses being paid by some local organization, while free hospital beds have been provided by other organizations for indigent patients. H. L. Stanton, state director of rehabilitation, is visiting the county medical societies to secure their cooperation.

Personal.—At the quarterly meeting of the executive committee, state board of health, Raleigh, September 30, Dr. Joseph Howell Way, president of the board, presented, on behalf of the members, two pieces of silver to Dr. Watson S. Rankin, former secretary of the board, as a token of appreciation of his service.——The president of the State Normal College of Cullowhee, Jackson County, announces the arrival of Dr. Luther B. Newman, Knoxville, Tenn., to assume the duties of health director and resident physician to the college. Dr. Newman will also conduct the classes in hygiene and physiology, and arrange for filing a complete physical examination of each student in accord with the recommendations of the state board of health.

NORTH DAKOTA

Dr. French Resigns.—Dr. William J. French, director of the child health demonstration being conducted by the American Child Health Association at Fargo, has resigned and will go to Austria, according to the *Journal-Lancet*, to conduct similar work; he will be succeeded by Dr. William De Kleine, now in charge of the child health demonstration conducted at Mansfield, Ohio.

OHIO

Advertising of Life Extension Institute Refused.—At a meeting of the Council of the Ohio State Medical Association, Columbus, September 13, communications from the Life Extension Institute were discussed, and it was voted to instruct the publication committee of the state association not to accept advertising from that institute.

Hospital Survey.—The hospital facilities of Cincinnati were recently surveyed by a representative of the Helen S. Trounstine Foundation at the request of the building fund committee of the Community Chest. It was found that there are eighteen private hospitals with 2,110 beds in Cincinnati, three municipal hospitals with 1,140 beds and twelve proprietary hospitals with 355 beds. Among the seventeen recommendations in the report are that a program be worked out for the care of convalescent patients discharged from the hospitals; that a committee of members of medical staffs of institutions be organized to elevate the standard of medical work in chronic diseases, and that in order to carry out these and other recommendations and afford an opportunity for joint planning, a hospital council be formed representing the hospital superintendents and trustees, the academy of medicine, and the public.

PENNSYLVANIA

Scholarships for Postgraduate Study.—Scholarships on the Oliver-Rea Foundation, the income of which is used for graduate study in medicine at the New York Post-Graduate Medical School and Hospital, are available. The scholarships are of no fixed value, the usual amount granted an applicant being not over $500; one-half of the tuition is paid in prolonged courses of instruction. The committee in charge is Drs. James F. McKernon, William D. Cutter and Ludwig W. Kast. Inquiries should be addressed to the Dean, 301 East Twentieth Street, New York City. Preference of scholarships will be given to applicants who are residents of Pennsylvania.

Philadelphia

Hundreds of Students Turned Away.—When the University of Pennsylvania, Philadelphia, had completed, October 3, 87 per cent. of its registration of full-time students it had then been unable to admit, according to the New York *Times*, about 2,200 students who sought admission. Full-time registration in the school of medicine amounted to 458 and in the dental school to 516.

Joint Meeting of Pediatric Societies.—The New England Pediatric Society, the Pediatric Section of the New York Academy of Medicine, and the Philadelphia Pediatric Society held a joint meeting at various hospitals in Philadelphia, October 10. There was a symposium on "Post-Tonsillectomic Pulmonary Abscess" by Drs. Edwin E. Graham, Willis F. Manges, Chevalier Q. Jackson, Louis H. Clerf and Gabriel Tucker. Dr. Eugene L. Opie, among others, spoke on "Newer Studies in Tuberculosis in Children." There was a luncheon at the Children's Hospital, an excursion to the Pennsylvania Training School for Feeble-Minded Children at Elwyn, and a dinner in the evening at the Hotel Rittenhouse.

Personal.—Dr. Helen Ingleby, London, England, has arrived to take up her duties as professor of pathology at the Woman's Medical College of Pennsylvania, succeeding Dr. Maude Abbott, who has returned to McGill University, Montreal.——Dr. William Pepper, Jr., dean, University of Pennsylvania School of Medicine, has been granted leave of absence until Christmas to go to England, France and Italy to inspect medical schools.——Dr. Francis C. Grant, associate in surgery, University of Pennsylvania School of Medicine, and instructor in surgery in the Graduate School of Medicine, has been granted leave until June to do special work at the Brighton Hospital, Boston.——Dr. Arthur P. Keegan assumed the duties of coroner's physician, October 1, succeeding Dr. Richard D. Burke.

TENNESSEE

Broader Service in State Health Department.—The state department of public health recently moved to new quarters in the Capitol Annex in the Tennessee War Memorial Building, and rearranged its activities to make them more effective. A division of epidemiology has been organized for the special study and control of preventable infectious disease; Dr. Edward A. Lane is superintendent of this division. The division of maternal and infant hygiene has been expanded and named the division of child hygiene and public nursing to embrace all work associated with the child from the prenatal period through school age. The work of the division of venereal disease control has been "scattered" among other divisions whose work has a bearing on this problem and a division of public health education created to take its place. In addition a whole-time director and laboratory service was instituted the early part of this year and an additional sanitary engineer secured. The state department, under the leadership of Dr. Eugene L. Bishop, comprises the divisions named and the division of general administration, division of vital statistics and the division of sanitary engineering. The personnel comprises twenty-eight persons, seven of whom are physicians.

TEXAS

Sanitary Survey of Rock Island Railroad.—The Rock Island Railroad has planned a campaign for eliminating malaria along its right of way through Arkansas, Louisiana, Oklahoma and Texas, using measures which have been successful in the antimalaria campaign of the Cotton Belt Line. At the same time a survey of the Rock Island will be made to eliminate other insanitary conditions.

Society News.—The members of the Coryell County Medical Society, Gatesville, and their wives held a dinner at Raby Park, August 6, and in the evening invited the public to a meeting which was addressed by Dr. Niel D. Buie, Marlin, councilor of the twelfth district, on "The Protection of the Child," and Dr. Arthur C. Scott on "The Prevention and Treatment of Cancer."——Dr. Robert B. Giles addressed the Dallas County Medical Society, August 13, at the Dallas Baby Camp, on "Clinical Recognition of Coronary Obstruction."——At the August meeting of the Potter County Medical Society the advertising and editorial committee was authorized to publish a roster of the society in the newspaper and to aid in the campaign against irregular practitioners, now under way, by the state medical association.——Dr. Leon H. Martin, recently appointed director of health of Fort Worth, addressed the Tarrant County Medical Society, August 4, on "The History of Public Health in Fort Worth," and Dr. E. H. Bursey, August 18, on "Splenectomy as a Cure for Purpura Hemorrhagica."

VERMONT

Gift to University.—By the will of the late Mrs. Emma H. Slade, New York, the University of Vermont received a trust fund of $50,000 for a memorial. The will provides also that the residuary estate be divided into three parts to be held in trust, and that upon the death of the first two beneficiaries the funds so represented shall be paid to the Massachusetts General Hospital, Boston, for whatever use the trustees may deem best, and that if the principal of the first two trusts does not amount to $25,000, a sufficient sum to make up the difference shall be given to the hospital on the death of the third beneficiary and the remainder of the third trust be given to the Fordham Home for Incurables, New York.

State Medical Meeting.—The one hundred and twelfth meeting of the Vermont State Medical Society will be at the Armory, St. Johnsbury, October 15-16, under the presidency of Dr. Eugene A. Stanley, Waterbury. Col. Edwin A. Tobin, M. O., R. C., will deliver the vice president's address on "Organization of Medical Reserve Corps of the U. S. Army." Among others, Dr. Orrin Sage Wightman, New York, will speak on "The Significance and Value of the Periodic Health Examination"; Dr. William L. Aycock, Burlington, associate in preventive medicine and hygiene, Harvard University Medical School, Boston, "Epidemiology of Acute Anterior

Poliomyelitis," and Dr. William C. Woodward, executive secretary, Bureau of Legal Medicine and Legislation, American Medical Association, "Present Status of Organized Medical Defense Against Malpractice Suits." The banquet will be Thursday evening at 8 o'clock at the St. Johnsbury House. There will be a symposium Friday on headache, in which Dr. Roger I. Lee, retired professor of hygiene of Harvard University; Dr. William Jason Mixter, Boston; Dr. George A. Waterman, Boston; Dr. Daniel Crosby Greene, instructor in laryngology at Harvard University, and Dr. George S. Derby, Williams, professor of ophthalmology at Harvard University, will participate.

WEST VIRGINIA

Fifty Physicians Fined.—During the last summer, more than fifty physicians in West Virginia were fined in justices' courts on complaints made by the U. S. Census Bureau for failure promptly to report births. In February there were 621 births reported to the Bureau of Vital Statistics one or more months late; in March, 790; in April, 1,029; in May, 1,374, and in June, 1,059, that were one or more months late. To correct this tendency, two field inspectors were placed on duty in May with orders to arrest outstanding cases of those who were responsible for the late reports.

WISCONSIN

Damages for Stream Pollution.—The supreme court of Wisconsin has awarded a realty company $50,000 damages for flooding of a farm and the creation of a public nuisance in the waters of Honey Creek by the discharge of raw and partially treated sewage into the stream by the city of West Allis and ordered that city to abate the nuisance within sixty days. In denying the appeal of the defendant the court emphasized, according to the chief chemist of the sewerage commission of Milwaukee, that no municipality has the right to pollute a natural watercourse to the detriment of lower riparian owners, and that a city or corporation which discharges sewage into a natural watercourse must purify its sewage irrespective of the cost so that it will cause no injury to lower riparian rights.

HAWAII

Personal.—Dr. Frederick E. Trotter, president of the board of health of Honolulu, has been sent by the Pan-Pacific Union as the official delegate of Hawaii to the conference of the Far Eastern Association of Tropical Medicine, to be held at Tokio, October 11-November 1.

GENERAL

A Secretary's Courtesy Rewarded.—A physician's secretary in Milwaukee observed that patients waiting frequently show an interest in health matters generally. She undertook to speak to such patients, at an opportune time, about *Hygeia*, and found that they did not know where to obtain a good health magazine and that they appreciated her courtesy. In this way, Miss Evelyn Gary obtained eighty-three subscriptions to *Hygeia* without interfering in any way with her office work.

First Meeting of Commission on Medical Education.—The commission, initiated by the Association of American Medical Colleges and participated in by the Rockefeller Foundation, the Carnegie Foundation and the American Medical Association, to conduct a comprehensive survey of medical education in the United States (THE JOURNAL, July 4, p. 46) will hold its first meeting in Buffalo at the Hotel Statler, Monday, October 19, for the purpose of electing officers, effecting a permanent organization and outlining the plan to be pursued in the conduct of this work.

Agamede Medal of the Women's Foundation for Health.—This foundation has announced the establishment of the Agamede Gold Medal, which will be awarded annually to that woman citizen of the United States who has performed the most distinguished service during the last year in advancing the health and happiness of American women. The winner of the medal need not be a scientist, the only prerequisite being that she shall have performed some signal service in this field. Agamede was a Grecian woman mentioned in Homer's "Iliad," the first woman other than mythologic characters who brought health and happiness to fellow human beings. Dr Martha Tracy, dean of the Woman's Medical College, Philadelphia, is president of the Women's Foundation for Health and Mrs. Drury W. Cooper, Montclair, N. J., secretary; Dr. Lenna L. Meanes is medical director, and Essie D. Hathaway, executive secretary of the foundation, 370 Seventh Avenue, New York. The final award of the medal will be made by a committee of nationally known men and women.

Health Survey of Eighty-Six Cities.—The American Child Health Association will issue, October 12, a report on a health survey of eighty-six cities undertaken late in 1923 and completed in June, 1924. The introduction describes how the survey was done; section two gives the practices in the different lines of health work in these cities; section three contains sketches of each city and section four suggestions for the organization of health work in a city of 50,000. It was found that the average cost of the health departments in these eighty-six cities, ranging from 40,000 to 70,000 population, is 42 cents per capita, the average salary of the full-time health officer in these cities $3,404, that sixteen of these cities have no boards of health, that only forty-five had a full-time health officer, and that the full-time employees varied from one in one city to more than twenty in five cities; another one had no full-time employees in its health department, having four persons who devoted a total of six hours a week to health matters. Toxin-antitoxin is being used in forty of the cities to immunize children against diphtheria. The reporting of tuberculosis to health authorities is "inexcusably lax" and in seventeen cities the number of deaths reported actually exceeded the number of cases. Forty of the cities surveyed have established prenatal clinics under the guidance of physicians and five cities have mothers' conferences. There were infant welfare clinics in eighty of the eighty-six cities; sixty-five cities reported having added courses in health to their school curricula; eighteen cities had had epidemics of communicable disease traced to the milk supply in the last five years; only eight cities protected their entire milk supply by adequate pasteurization and twelve others pasteurized more than 90 per cent. of their supply. Since completing the field work of this survey, the American Child Health Association has prepared a community health program which it considers practical for a city of 50,000 and which it intends for the use of public health administrators. The report considers that the greatest needs now are well trained health officers who give their undivided attention to health work, the standardization of methods, some thought in explaining health work to the public and better team work among public and private health agencies.

Association of American Medical Colleges.—At the thirty-sixth annual meeting of this association, Charleston, S. C., October 26-28, at the Fort Sumter Hotel, the presidential address by Dr. Hugh Cabot, dean, University of Michigan Medical School, Ann Arbor, will be "Should Medical Education Be Importantly Recast?"; Dr. William Keiller, dean, University of Texas School of Medicine, will speak on "The Claims of the Fundamental Subjects"; Dr. Charles F. Martin, dean, McGill University Faculty of Medicine, on "The Relative Value of Subjects in the Medical Curriculum"; Marion R. Trabue, Ph.D., director, Bureau of Educational Research, University of North Carolina, on "Increasing the Usefulness of Examinations"; Charles E. Chadsey, Litt.D., dean, College of Education University of Illinois, "Technic of Teaching as Applied to Medical Teaching"; Dr. John S. Rodman, secretary-treasurer, National Board of Medical Examiners, "Impressions on Medical Teaching Gained from Ten Years' Experience with National Board Examinations"; Dr. Carl A. Hamann, dean, Western Reserve University School of Medicine, "The Teaching of Surgery"; Chester J. Farmer, A.M., professor of chemistry, Northwestern University Medical School, "The Teaching of Biochemistry"; Karl F. Meyer, Ph.D., professor of bacteriology, University of California Medical School, "The Teaching of Bacteriology in the Medical Curriculum"; and Dr. Charles C. Bass, dean, Tulane University of Louisiana School of Medicine, "The Teaching of Practical Clinical Laboratory Work in the Undergraduate School."

There will be practical demonstrations in teaching at the Medical College of the State of South Carolina, Tuesday morning, and in the afternoon a round table conference in which the discussions will be opened by: Drs. Irving S. Cutter, dean, Northwestern University Medical School, Chicago; Charles P. Emerson, dean, Indiana University School of Medicine; Oskar Klotz, Toronto University Faculty of Medicine; Basil C. Harvey, University of Chicago; William F. R. Phillips, Medical College of the State of South Carolina; G. Canby Robinson, dean, Vanderbilt University School of Medicine; William H. Goodrich, dean, University of Georgia Medical Department; John W. Moore, University of Louisville School of Medicine, Kentucky, and Albert P. Mathews, Ph.D., University of Cincinnati College of Medicine. The business session will be Wednesday morning. Northwestern University Medical School, Chicago, has proposed an amendment to Article 3, Section 5, to the effect that the annual dues shall be $100.

FOREIGN

Malaria Committee Concludes Its Tour.—The *Siglo Médico* of Madrid states that the malaria committee of the League of Nations, which has been studying conditions in Spain after its tour of investigation in Russia and Palestine, concluded its labors, September 7, the members returning to their homes. The last gathering in Spain was at a banquet tendered the committee at Barcelona by the state and municipal authorities and others.

Outbreaks of Plague.—Six cases of plague were reported in Egypt during the week ending August 12, making a total of ninety-six cases in that country reported this year.——A member of the crew of the S. S. *Anatolia* sick with plague was removed from the ship at Piraeus, Greece, August 8. The *Anatolia* had come from Alexandria, Egypt.——During the period July 16 to August 15, ninety-one rats trapped at Guayaquil, Ecuador, were found to be plague infected.——A plague infected rodent was reported at Paauhau, Hawaii, August 12.

Personal.—Dr. J. F. F. Babinski, Paris, has been appointed honorary professor of neurology at the University of Vilna.——Prof. L. E. Barnett is to preside at the Second Medical Congress of Australia which is soon to convene at Dunedin, New Zealand.——Dr. Pierre Lépine, has been appointed professor of internal medicine at the American University of Beyrouth.——The *Bruxelles-médical* gives the names of seven young confrères who have won scholarships for study in the United States, Brutsaert, De Guchteneer, d'Hoenens, Eeman, Morelle, Radelet and Verhoogen.——The Elia de Cyon prize of the Academy of Sciences at Bologna has been awarded this year to Prof. H. Fredericq of Liége for his works on "The Humoral Mechanism of the Action of Various Heart Remedies in Coldblooded Animals." The second prize was given to Dr. L. Lotti for his research on plethysmography. The title of his work was "The Vasomotor Reflexes in Young Infants and the New-Born."

Deaths in Other Countries

Sir **Alan Reeve Manby**, royal physician to the late King Edward and to King George, September 29, at London, England, aged 78.——Dr. **A. M. Centeno**, professor of pediatrics, Buenos Aires, formerly president of the Argentine Medical Association and first president of the Pediatrics Society, aged 62.——Dr. **C. Homem de Mello**, chief of staff of the hospital for mental disease at S. Paulo, aged 63.——Dr. **M. Simmonds**, prosector and director of the Pathologic Institute at Hamburg from 1882 to 1924.——Dr. **L. Merk**, professor of skin and venereal diseases, at Innsbruck.——Dr. **J. Berdez**, professor of materia medica, Lausanne.——Dr. **W. Krebs**, Zurich, aged 79; he practiced in a rural district and made all his rounds on foot for the love of nature and for health.——Dr. **Bacquelin**, Nevers, another victim to the professional use of the roentgen rays, aged 56.——Dr. **Clotilde Mulon**, Paris, on the staff of the *Nourrisson*, founder and director of an infant's asylum.——Dr. **H. W. Freund**, formerly professor of obstetrics at Strasbourg, aged 66.

CORRECTIONS

Dr. De Eds Is Assistant Professor.—Floyd De Eds, Ph.D., has been appointed assistant professor of pharmacology instead of professor at Stanford University Medical School, San Francisco (The Journal, September 28, p. 980).

Smallpox Statistics.—In a current comment on this topic it was stated that the United States held first place among all nations for the greatest number of cases of smallpox. The figures quoted were taken from a bulletin issued by the American Association for Medical Progress. This association now calls attention to the fact that the number of cases for European Russia should have been the total for all Russia, and that the figure for India represented deaths and not cases. According to these corrections, the United States would have the second largest number and not the first.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 19, 1925.

Bernard Shaw on the Irish Medical Controversy

The acute controversy in Ireland which has followed the decision of the government to establish a separate medical register has been described in previous letters. In characteristic fashion, Mr. Bernard Shaw, who is always entertaining in his advocacy of the paradoxical, has plunged into the controversy. In a letter to the *Irish Times* he has given his countrymen advice: "The Free State government will, I hope, carry through its decision to rescue Ireland from the disastrous control of that despised and self-disgraced trade union, the British medical council. At present unregistered practitioners charge and are willingly paid higher fees than registered ones because they have acquired the modern technics which the council boycotts and persecutes. The most famous manipulative surgeon in England, knighted for his services, being unregistered, is denounced and ostracized as a quack by men of whom some, though registered as competent surgeons, are hardly dexterous enough to manipulate their own shoe laces. The council avenges itself for the public slight of the knighthood by threatening to repeat its old exploit of striking off the register any one who acts as an anesthetist to him. Now comes the serious question, Will an Irish medical council prove any better? Certainly not, if the Irish government acts as stupidly and ignorantly as the English. In President Cosgrave's otherwise sensible statement there is one terrifying phrase, 'a self-controlled medical profession.' A self-controlled medical profession is a conspiracy against the laity. The profession has a direct pecuniary interest in keeping us ill and mutilating us, and needs the sternest disinterested control. The health officer is the only sort of physician who should be trusted in a properly constituted council. Let the new Irish medical council be accessible to practicing physicians in the capacity of consultants and assessors only and consist exclusively of representatives of disinterested scientific culture and the laity. If this condition is complied with, an Irish degree will soon stand higher than an English one."

Of course, the answer to this tirade is that the medical council—whatever may be said of some other medical bodies—has nothing to do with trade unionism. Its function is to control education and insure proper standards for admission to the profession and maintain professional discipline. It, indeed, protects the laity against the profession. It cannot extend any recognition to unqualified persons, as it would be stultifying the very purposes for which it exists. For the same reason it cannot allow qualified physicians to administer anesthetics for unqualified practitioners. However skilful the particular bonesetter mentioned above may be, if the position which Mr. Shaw desires for the unqualified generally were granted, it would mean the flood of quackery to the detriment of the public. Moreover, this is a free country in which any one can practice medicine as long as he does not pretend to be qualified. As regards the law, he suffers from only two disabilities—not of great moment. He cannot sue for payment for medical services, and if a patient dies under his treatment he cannot grant a death certificate, and therefore a coroner's inquest automatically follows. Beyond restraining qualified persons from administering anesthetics for the unqualified, the council in no way does or can interfere with unqualified practitioners. Shaw therefore misrepresents when he says that they are persecuted by the council.

Lunacy Report

The annual report for 1924 has been issued by the board of control (the body appointed by the government to control lunacy administration). It states that need for additional accommodation for mental defectives is acute, and the lack of suitable accommodation is hampering the operation of the mental deficiency act. The accommodation recommended is the villa system, as this allows better classification and training, and secures for the defectives happier lives than institutions of the barrack type. An increase in facilities for early skilled treatment of mental disorder without certification is recommended as a means of reducing the number of cases of insanity of confirmed character. The increasing frequency with which persons mentally ill submit themselves to treatment in registered hospitals and licensed houses is considered gratifying. Jan. 1, 1925, the number of insane under care in England and Wales was 131,551, an increase of 1,217 on the number of Jan. 1, 1924. But this is considered to have no necessary connection with the incidence of mental disorders in the general population.

The Medical Treatment of School Children

The board of education has issued new special regulations made under the education act. Each child in a public elementary school must be medically examined on admission, and on attaining the age of 8 and of 12 years. Local authorities must make arrangements for (*a*) following up cases of defect found in the course of medical inspection, (*b*) the detection and prevention of uncleanliness, and (*c*) the medical treatment of defects of eyes and teeth, minor ailments and enlarged tonsils and adenoids. This means the setting up of dental, ophthalmologic and minor surgical clinics. The local authorities are now ordered to provide for the medical inspection of persons under 18 attending secondary schools, pupil teacher centers, preparatory classes and junior technical schools. They may also make such arrangements as may be sanctioned by the board for attending to the health and physical conditions of the pupils attending secondary schools and other specified institutions. In the case of nursery schools, it is ordered that adequate arrangements must be made for attending to the health, nourishment and physical welfare of the children.

Justice to Animals

The Council of Justice to Animals has two objects: (1) to promote humane methods of slaughtering for food and (2) to provide for the painless killing, when necessary, of horses, dogs and other animals. In its thirteenth annual report, just issued, progress is announced in the cause of humane killing. The council lends instruments to any slaughterer willing to give them a trial and has persuaded 150 local authorities to make the use of such killers compulsory. It also presents lethal boxes and special pistols to pharmacists, police officials and others concerned in the destruction of unwanted or strayed cats and dogs. The council engages in active propaganda both at home and abroad. Demonstrations and missionary work in France, Spain, Belgium, Greece and other countries have been well received. France is rapidly adopting a killer called the "harmor" in preference to the mallet, by which an animal has often been struck ten blows. In Paris there is a demand for the two English captive bolt pistols, the demonstrations with which have been described by the French as "triumphant." In Rome, the annual slaughter of 150,000 animals has been handed over to a society of which Mr. Leonard Hawksley is honorary director, and under his inspector the captive bolt pistols are used, which means painless instead of extremely painful deaths for all these animals. The council commends this handing over of the slaughter of animals to a society for the protection of animals as a system which might be adopted in many English towns and so would do away with the horrors not only of killing but also of transit and handling in most slaughterhouses.

The Battle for Boric Acid

The ministry of health's regulation to prohibit the use of boric acid as a food preservative has given rise to much protest, which will make itself felt when the House of Commons meets again. Traders declare that the effect will be to restrict the importation of food and raise prices, particularly in the case of eggs, and that the risk of food poisoning will be increased, as venders will be tempted to conceal deterioration of food by cooking it in order that it may not be wasted. The equivalent of 1,000 million eggs in liquid form, preserved with boric acid, is imported from China annually. Canadian bacon and ham, colonial butter, margarin, cream, cakes and some cheese will also be affected. A great difficulty is that the cold storage facilities in this country are far short of those which will be required if boric acid is prohibited. A number of leading chemists and physicians have declared against the prohibition. Sir William Pope, professor of chemistry in Cambridge University, says that the nature of the evidence on which the ministry acted lacks an unimpeachable scientific basis. Dr. Robert Hutchison, a physician and authority on dietetics, states that if preservatives are abolished to the extent required there will be a great risk of food poisoning. Other protests have come from Prof. F. W. Tunicliff, physician to King's College Hospital; Dr. Panton, clinical pathologist to the London Hospital; Dr. J. C. Drummond, professor of biochemistry at the University of London, and Dr. J. Glaister of the University of Glasgow.

The Mode of Action of Oiling of Water in the Destruction of Mosquito Larvae and Pupae

The researches of Dr. Keilin of the Molteo Institute throw a new light on what happens when water is oiled for mosquito destruction. It has always been supposed that mosquito larvae and pupae are destroyed by the oil or paraffin layer preventing access of oxygen to the breathing tubes. But the process is not so simple. Dr. Keilin has discovered that certain cells of the breathing tubes produce fatty substances which prevent intrusion of water into the spiracles and tracheae of the larvae and pupae. He has shown that paraffin and other substances, such as chloroform and alcohol, destroy these fatty substances, and then water enters the spiracles and tracheae. It is this, and not the absence of oxygen, that produces suffocation.

Health of the Navy: Lowest Disease Death Rate on Record

A report on the health of the navy in 1922, just issued, shows a marked improvement in the general health as compared with the five-year period 1909-1913, and also as compared with 1921. The total force was 95,560, and the total number of cases of disease and injury was 53,979, which gives a ratio of 559 per thousand, a decrease of 81 as compared with the average for the five-year period. The total number of days' sickness on board and in hospital was 854,280, which represents an average loss of service of 8.84 days, a decrease of 0.65 as compared with the average. The Atlantic fleet shows the lowest sick rate, and the irregular list the highest. Deaths numbered 333, a ratio of 3.44 per thousand. There were 4,504 cases of influenza, 10,033 cases of venereal diseases, 6,900 of diseases of the respiratory system, 7,783 of diseases of the digestive system, and 7,077 of diseases of the areolar tissue and skin. Only two entries are returned of wounds and injuries in action. There were eleven cases of suicide. A table of the ratio per thousand of deaths in the service shows a steady decline from diseases alone from 12.1 in 1856, 14.7 in 1857, 22 in 1858, and 11 in 1859 to 1.97 in 1922, the lowest rate on record.

PARIS

(From Our Regular Correspondent)

Sept. 19, 1925.

Filtrable Types of Tubercle Bacilli

Arloing, taking up again the question of filtrable types of tubercle bacilli, prepared filtrates of tuberculous lesions in man and of cultures of tubercle bacilli. The filtration was done with a Chamberland filter. As filter control, cultures of ordinary micro-organisms were mixed with the tuberculous products subjected to filtration. Each filtrate was afterward cultivated on various mediums to verify its sterility. After sterility was established, Arloing followed two methods: 1. He cultivated the filtrates in glycerinated peptone solution and in glycerinated bouillon. 2. He injected 2 c.c. of the filtrate into the peritoneum of a guinea-pig and subcutaneously into the thigh of another guinea-pig. He used successively filtrates of lesions from pulmonary inoculation of an infant, of subcutaneous tuberculoma taken from a child 2 years old, of a granulated lung, and of cerebrospinal fluid. He employed also recent cultures of tubercle bacilli on Petroff's culture medium.

All the animals were killed after one to two and a half months, which is too short a time. Arloing did not find a visceral lesion in any of the cases, but he observed swellings of the lumbar, mesenteric and tracheobronchial glands, and in these glands he found numerous tubercle bacilli. Arloing found no caseation, which caused him much surprise. All attempts to develop cultures with the filtrates proved of no avail.

Arloing's experiments, presented before the Société de biologie, seem to invalidate in part the researches of Vaudremer. Vaudremer stated that he obtained regularly cultures of acid-fast organisms from filtrates. However, Valtis also was unsuccessful in attempts to cultivate organisms from filtrates, though he succeeded regularly in tuberculizing guinea-pigs by injecting under their skin filtrates of tuberculous sputum passed through a Chamberland filter.

In three successive experiments, Valtis tuberculized three groups of guinea-pigs with filtrates of tuberculous sputum (*Annales de l'Institut Pasteur,* June, 1924). With filtrates of cultures he obtained similar results. He established this fact, now confirmed by Arloing: the existence of multiple glandular swellings in the inoculated guinea-pigs, many tubercule bacilli being found in the glands. He also found lesions in the viscera. He discovered many tubercle bacilli in pneumonic foci. In the lungs he found frankly caseous lesions with many tubercle bacilli. Arloing would doubtless have observed this condition if he had not killed his animals so soon. Valtis did not find caseous pulmonary lesions until after the lapse of three months.

Valtis brought to light the regular absence of an ulcer at the site of inoculation. It seems that the glands are the first stopping points of filtrable tubercle bacilli. Finally pulmonary lesions of two types appear: pneumonic or caseous, in which typical tubercle bacilli are found.

Recently, Durand and Charchansky pointed out, as did Valtis, that inoculation with filtrates may produce caseous lesions in the guinea-pig. They observed a large caseous gland near the spleen. Again, it is evident that Arloing would have secured similar results if he had not killed his animals so early. Valtis showed also that animals tuberculized with filtrates react very rapidly to tuberculin—almost as rapidly as animals inoculated with unfiltered tuberculous sputum.

Before Valtis, Fontés in 1910 had pointed out that granulations (so-called Much granulations) of tubercle bacilli pass through the Berkefeld filter. Having injected the filtrate into guinea-pigs, he found what he regarded as granulations in the spleens. Inoculating other guinea-pigs with the spleen, he found tuberculous glandular and pulmonary lesions. He had not, however, observed tuberculous lesions in the guinea-pigs into which he had injected the filtrate.

From these researches, the following facts are evolved:

The guinea-pig may be tuberculized with filtrates of tuberculous products. Animals thus tuberculized give positive skin reactions. No ulcer is observed at the site of inoculation, but gradually the glands begin to swell and finally caseous pulmonary lesions appear. All these facts have been brought to light by Valtis and have been confirmed by numerous authors. They are of real importance and should be taken account of in a number of problems bearing on tuberculosis.

The question of cultures from filtrates remains still undecided. Vaudremer and later Hauduroy allege that they obtained special types of acid-fast organisms, which they had been able to reproduce in a series. But, of late, the attempts to secure these cultures (Valtis, Arloing and others) have been negative, and it is a question whether the filaments described by Vaudremer and studied by him have any actual relation to the tubercle bacillus.

The question of filtrable types of tubercle bacilli seems to be becoming more clarified. Perhaps we may expect in the near future some interesting results which will modify our present conception of tuberculosis in man.

BELGIUM

(From Our Regular Correspondent)

Sept. 15, 1925.

Mental Strain and Dementia Praecox

Dr. Deroitte has shown that there are more dementia praecox patients in Belgian than in English asylums. Examination of causes shows that this possibly is due to different methods of instruction and to errors in hygiene of the nervous system. Brain work must not exceed the resisting capacity of that organ. As a rule, pupils are compelled to devote some time to home study, and reforms in instruction have only resulted in overloading the study schedules and aggravating the evil. In an article in the *Scalpel,* Deroitte suggests that physicians always be associated with any commission appointed to revise the curriculum. The advice of physicians is needed in apportioning the mental and physical work that pupils of a given age can safely be required to do. Their presence would help suppress the medieval custom of assigning mental tasks as a punishment, which only irritate a pupil. Often, says Deroitte, a pupil who is punished for negligence is predisposed to mental disease and should receive additional care and attention. The author advocates complete revision along this line. Medical science, he says, should aid in elaboration of school curriculums, which so greatly affect the future of youth.

The Etiology of Trachoma

At the thirty-eighth congress of the Société française d'ophtalmologie, in Brussels, Morax of Paris and Cazalès of Béziers contributed papers on the etiology of trachoma. Morax thinks that children are infected, as a rule, by the mother, and offers this as an explanation of the trachoma which is endemic in Egypt, Morocco and Tunis, affecting at times from 90 to 95 per cent. of the inhabitants. Contagion by transmission is not a serious menace to adults. The principal objective in the crusade against trachoma must be prevention of transmission within the family.

Cazalès surveyed the pathogenic findings from two standpoints: first, conjunctival microbic infection by various organisms, one of which may predominate, and second, diathetic specificity. According to the latter view, trachomatous follicles may follow inflammatory modifications of the conjunctival epithelium and the underlying tissue.

The Law Pertaining to Public Charity

Administration of public charity in Belgium is being completely reorganized. Heretofore, an old law provided for two different organizations or societies: the bureau of charity and the commission on municipal shelters, the two being grouped under the name of commissions on public assistance. These commissions exist in nearly all communes. If the resources of certain communes are not sufficient, they are authorized to unite to form an intercommunal commission. In the most general sense, the objects of the commissions are to succor and provide hospital service for the poor. They decide in questions of indigence on allocation of benefits and on admissions to and dismissals from communal institutions. The commissions must organize medicopharmaceutic services for home care and create hospital services, maternity and isolation hospitals, either in their own institutions or in private establishments. They appoint and remunerate the physicians and functionaries of the various services, and, in general, all the workers of the bureaus of public assistance.

A new law, which is the outcome of discussions that began soon after the armistice was signed, went into effect in September and has introduced many reforms. The new law accords to the indigent free choice of physician, laboratory physician, pharmacist and midwife for home treatment. Thus, the two questions that interest the medical profession have been solved: 1. The organization of adequate medicosurgical equipment. This organization will be supervised by a medical inspector of hygiene, who will furnish an annual report to the minister of justice. 2. Owing to the free choice of physician, the commissions cannot employ physicians at ridiculously low salaries to treat the poor. Furthermore, the commissions will be urged to appoint medical councils to supervise medical expenditures and the care given patients. The medical councils will constitute connecting links between the physicians and the administration. The councils will authorize patients to be roentgenographed, operated on, examined by specialists, sent to a hospital, or provided with spectacles or orthopedic appliances. By obtaining the approval of the councils, medicines more satisfactory to practitioners as well as to patients may be employed. Every patient will be supplied with a book, in which will be recorded the principal administrative and medical facts pertaining to the patient. When occasion arises, the administration will give the record book to the physician. In the administrative record, which contains a blank space for every day in the year, the physician will enter a conventional mark every time he renders a service. Thus, the preparation of accounting and auditing will be easy. In the medical record, the physician will enter symptoms, diagnosis, and the treatment prescribed. A patient cannot be given conscientious care without this minimum of note taking. When, under former conditions, a physician to the poor received a mere pittance, he could not take time even for these entries. Now that the physician can count on fair remuneration for every service, he can practice without undue haste.

Aside from the medical organization that we have thus outlined, the new legislation reaches out into social fields. Article 1 develops the idea that the commissions must not only relieve but also prevent poverty and misery. The commissions may grant subsidies or make reimbursable advances to provident societies, demanding, as far as possible, a personal contribution from those affiliated on payment of their annual dues. With the same purpose in view, the commissions may build or buy reasonably priced houses, or participate in the work of societies pursuing such aims as the creation and development of workmen's gardens. Indeed, the administrations are urged to enter into the present-day movement, which emphasizes insurance and provision for the future.

Tar Cancer

In general, the experimental and pathologic cases of occupational cancer are regarded as of purely local origin. Maisin and Masse before the Société belge de biologie seem to oppose this view. These authors have pointed out that, in addition to its local irritant action, tar exerts a general toxic action on the mouse, so that the organism develops cancer more readily than a normal organism. In view of the theories recently advanced that cancer is a general disease, these findings are valuable.

BERLIN

(From Our Regular Correspondent)

Sept. 19, 1925.

Welfare Treatment of Venereal Patients

The transactions of the German Society for Combating Venereal Diseases, which was held in Dresden in September, had to do less with medical than with social and hygienic welfare treatment among venereal patients. The opening paper on the subject "Cooperation in the Welfare Treatment of Venereal Patients and in the Institution of Prophylactic Measures" was presented by Irmgard Jäger, who is connected with the welfare department of Mecklenburg-Schwerin. The gist of her argument follows: In former years prostitution was the main cause for the spread of venereal diseases, and to curb those diseases necessitated an energetic campaign against the evils of prostitution. Today, in addition to prostitution, welfare workers must extend their field and consider the increase of extramarital sexual intercourse. Police provisions and medical measures are not adequate. Mild and tactful expedients are needed to aid those menaced; more particularly, the juvenile element of the population. The so-called caritative societies pursue different aims, and their members are not always willing to operate in the difficult field described. The sole presentation of purely ethical teachings in routine fashion will not accomplish the purpose sought. Those who are menaced must be given an opportunity to improve their social and economic position. Welfare workers must have received thorough training for their work, and must have good judgment and tact. Their moral and ethical qualities must be unassailable. Cooperation with physicians and welfare organizations, and with police stations and health insurance societies is essential. Such cooperation can be effected if all parties concerned will only show the proper good will, as in Mecklenburg-Schwerin, where there is limited compulsory reporting of venereal patients. Physicians report venereal patients to the welfare centers if they appear likely to withdraw from treatment or if they have failed to reappear during a physician's office hours, while taking treatment. No documentary correspondence is carried on, for reasons of discretion. The welfare workers get in touch with the persons concerned in an inobtrusive way, and seek to influence them by a personal interview. If the welfare workers are able to give them effective aid, they usually can influence them ethically and morally. In this way, many young girls are saved who would otherwise degenerate. Many venereal patients are unable in their surroundings to carry out the treatment that the physician has prescribed. Bad housing conditions and certain occupations (maids, employees) make this difficult. If the nature of the disease becomes known, the patient runs a risk of losing her position and of being damaged socially. On the other hand, if female venereal patients are brought much in contact with other persons, especially children, it is an exceedingly serious matter. The physician is unable, under such circumstances, to render aid. The welfare worker, on the other hand, finds here an opportunity to do some of her best work. She can put her protégées in touch with all welfare agencies: the caritative societies, the federal insurance bureau, the consultation centers and the health insurance societies. Methods of cooperation have been worked out in many cities with excellent results.

Prof. Herwart Fischer of Wurzburg spoke on "The Necessity of Thorough Medical Treatment of Venereal Patients in Our Jails and Prisons." During his five years as prison physician in Breslau, a large percentage of the prisoners had venereal disease; 17 per cent. were suffering from syphilis. This finding is in apparent conflict with the number of syphilitic patients in other penal institutions. The difference is due to the fact that heretofore only those prisoners had been designated as syphilitic who presented marked symptoms. The routine Wassermann test, which was applied in several penal institutions at the instance of Professor Fischer, revealed that in some prisons the proportion of syphilitics was 20 per cent. Fischer figures that there are about 125,000 syphilitic patients in German penal institutions every year, of whom only 20 per cent. receive treatment. Around 100,000 received inadequate treatment or none at all. Most prisoners are of inferior moral character and are chiefly unsocial, irresponsible persons, who represent a great source of infection. Fischer favors the most effective modern treatment for prisoners with venereal disease for which their stay in prison presents a favorable opportunity. If needed, treatment should be assured after their dismissal until they are cured. In some cities, a corps of specialists and trained personnel give consistent treatment to all venereal prisoners, and the results have been good. The main difficulty in the way of carrying this out universally is the great expense that it entails. Fischer thinks that the state should not bear all the expense but that demands should be made on the provincial insurance bureaus, the health insurance societies, and, in some cases, the prisoners themselves.

The second speaker on this subject, Prof. Dr. Galewsky, reported on his investigations and the measures adopted in the Saxon penal institutions. In cooperation with the state officials, he worked out the plans introducing all possible measures that govern treatment of venereal prisoners. In Dresden the conditions are especially favorable; the penal institutions have excellent rooms for treatment and well trained specialists. The ministry of justice and the state officials have done what they could to further the undertaking. Every prisoner must be treated; the nature of the treatment is left to the physicians appointed by the state. In addition to treatment, it is well to give the prisoners needed instruction by lantern slides and appropriate leaflets.

Marriages

James Mortimer Pierce, Ann Arbor, Mich., to Miss Doris Alice Will of Lockport, N. Y., August 18.

Gordon Wesley Batman, Indianapolis, to Miss Mildred Hauss of Sellersburg, Ind., August 12.

Lloyd O. Peckenschneider to Miss Helen Marie Fellner, both of Davenport, Iowa, June 30.

James G. Sandidge, Mulberry, Mo., to Miss Maude Curran of Burgess, at Neosho, August 6.

Stuart Broadwell, Jr., to Miss Mary Temple Smith, both of Springfield, Ill., in September.

Karl Monroe Koons, Indianapolis, to Miss Catherine Miller of Warren, Ohio, August 8.

Lyman H. Hoyt, Iowa City, to Miss Helen Sawyer of Greenfield, Iowa, June 10.

Capl Edgar Sampson to Miss Eileen Reardon, both of Creston, Iowa, June 10.

Neil E. Funk, La Porte, Ind., to Miss F. Lois Miller of Chicago, June 25.

Dexter A. Buck to Miss Grace Powell, both of La Porte, Ind., June 31.

Deaths

Louis Starr, Dinard, France; University of Pennsylvania School of Medicine, Philadelphia, 1871; instructor of physiology and therapeutics, 1874-1877; lecturer on diseases of children, 1880-1884, and clinical professor of diseases of children, 1884-1890, at his alma mater; at one time on the staffs of the Episcopal, Children's, University and Maternity hospitals and the Southern Home for Destitute Children, Philadelphia; formerly assistant editor of Pepper's System of Medicine, American editor of Goodhart's Diseases of Children, author of a textbook on diseases of children and other works; aged 76; died, September 12.

Walter Porter Manton ⊕ Pasadena, Calif.; Medical School of Harvard University, Boston, 1881; member of the Michigan State Medical Society; the American Gynecological Society, and the Royal Medical Society of London; emeritus professor of obstetrics, Detroit College of Medicine and Surgery; at one time on the staffs of the Harper, Herman Keifer and Women's hospitals and St. Joseph's Retreat, Detroit; author of medical books and a contributor to textbooks and medical journals; aged 68; died, September 24, following a long illness.

David Ernest Hoag ⊕ Pueblo, Colo.; Kansas City (Mo.) Hahnemann Medical College, 1905; University of Maryland School of Medicine, Baltimore, 1908; member and at one time president of the Associated Anesthetists of the United States and Canada; secretary of the Pueblo County Medical Society; aged 43; died, September 18, of septic appendix.

Samuel Boyce Pole ⊕ Washington, D. C.; George Washington University Medical School, 1909; clinical instructor of laryngology and otology at his alma mater; on the staffs of the Episcopal Eye, Ear and Throat Hospital and the George Washington University Hospital, where he died, September 24, of septicemia, aged 39.

Frederick William Lux ⊕ San Francisco; Medical School of Harvard University, Boston, 1885; formerly professor of clinical medicine, College of Physicians and Surgeons of San Francisco; at one time on the staff of the San Francisco Hospital; aged 64; died, September 20, at St. Francis Hospital, of chronic myocarditis.

Albert Miles Taylor ⊕ San Francisco; Missouri Medical College, St. Louis, 1883; formerly professor of gynecology and abdominal surgery, College of Physicians and Surgeons; aged 66; died, September 18, at St. Francis Hospital, of chronic myocarditis and diabetes mellitus.

G. E. Whitlock, Columbus, Ill.; Jefferson Medical College of Philadelphia, 1876; member of the Illinois State Medical Society; past president of the Adams County Medical Society; aged 74; died, September 19, at the Blessing Hospital, Quincy, of chronic nephritis.

Frederick William Kappelman, Milwaukee; Northwestern University Medical School, Chicago, 1912; member of the State Medical Society of Wisconsin; on the staffs of the Deaconess and Emergency hospitals; aged 50; died, September 26.

Zachary Talmage Penhorwood, Greenville, Ohio; Ohio State University College of Medicine, Columbus, 1915; member of the Ohio State Medical Association; aged 33; died, September 13, at Philadelphia, following an appendectomy.

Richard Fyfe, Chicago; Medical Department University of Illinois, Chicago, 1893; member of the Illinois State Medical Society; formerly on the staff of the Home for Crippled Children; aged 55; died, August 3, of pulmonary tuberculosis.

Jacob J. Russler, St. Louis; St. Louis University School of Medicine, 1903; member of the Missouri State Medical Association; formerly on the staff of St. John's Hospital; aged 50; died, September 19, of cerebral hemorrhage.

John Ladd Burnham, Portland, Conn.; Yale University School of Medicine, New Haven, 1899; member of the Connecticut State Medical Society; aged 54; died recently, at Antofagasta, Chile.

Neill Davies Johnson, Fort Myers, Fla.; Chicago Homeopathic Medical College, 1903; formerly a practitioner in Kansas and Missouri; aged 72; died, September 19, following a long illness.

Alexander Marshall Purdy, Mystic, Conn.; University of Vermont College of Medicine, Burlington, 1884; member of the Connecticut State Medical Society; aged 63; died, September 23.

Albert Todd Post, New York; Jefferson Medical College of Philadelphia, 1896; assistant medical director of the Equitable Life Assurance Society; aged 52; died, September 21.

John Dudley Cooke, Shortsville, N. Y.; College of Physicians and Surgeons, Buffalo, 1882; member of the Medical Society of the State of New York; aged 70; died, September 17.

Kenelm Leggett, Hobgood, N. C.; Kentucky School of Medicine, Louisville, 1884; member of the Medical Society of the State of North Carolina; aged 73; died, September 20.

Thomas Moffett Sherman, Kennard, Texas; Kentucky School of Medicine, Louisville, 1883; member of the State Medical Association of Texas; aged 74; died, September 14.

William T. Sewell, Baxter, Tenn.; University of Tennessee College of Medicine, Memphis, 1894; aged 61; died, September 11, at a hospital in Nashville, following a long illness.

Howard F. King, Windsor, Conn.; Albany (N. Y.) Medical College, 1899; member of the Connecticut state Medical Society; aged 53; died, September 19, of angina pectoris.

Thomas Chowning ⊕ Hannibal, Mo.; Missouri Medical College, St. Louis, 1875; formerly on the staff of the Levering Hospital; aged 73; died, September 16, of pneumonia.

Felix Constantine Harman, Ottoville, Ohio; Starling Medical College, Columbus, 1905; member of the Ohio State Medical Association; aged 44; died, September 15.

James Moore Wilson, Douglas, Wyo.; Jefferson Medical College of Philadelphia, 1878; aged 71; died, September 13, at the Douglas Hospital, of cerebral hemorrhage.

Hermann F. Kudlich, New York; University of Vienna, Austria, 1869; member of the Medical Society of the State of New York; aged 81; died, September 26.

Alonzo C. Taylor, Baldwinsville, N. Y.; Philadelphia University of Medicine and Surgery, 1865; Civil War veteran; aged 83; died, September 22, of senility.

Luther Lee Johnson ⊕ East Florence, Ala.; University of Wooster Medical Department, Cleveland, 1880; aged 68; died, September 15, of heart disease.

John Dowell Combest, Loretto, Ky.; Kentucky University Medical Department, Louisville, 1905; aged 52; died, September 18, at a hospital in Lebanon.

William Sommerville Woodworth, Kentville, Nova Scotia, Canada; Medical School of Harvard University, Boston, 1873; aged 77; died, July 22.

Arthur Monroe Calvert, Akron, Ohio; Medical College of Indiana, Indianapolis, 1903; aged 49; died, September 17, of intestinal obstruction.

Frank Wheeler, Plainfield, Vt.; Hahnemann Medical College and Hospital, Chicago, 1882; aged 73; died, September 14, of heart disease.

Norman William Anderson, Lumsden, Sask.; Queen's University Faculty of Medicine, Kingston, Ont., 1898; aged 55; died, August 28.

James Miner, Winchester, Ill.; Jefferson Medical College of Philadelphia, 1861; Civil War veteran; aged 90; died, September 18.

Elija F. Mulkey, Commerce, Texas; Vanderbilt University Medical Department, Nashville, Tenn., 1881; aged 83; died, September 19.

Henry F. Webb, North Little Rock, Ark. (licensed, Arkansas, 1903); aged 59; died, September 15, at a hospital in Little Rock.

Melvin Wilson Hill, Mount Vernon, Iowa; College of Physicians and Surgeons, Keokuk, 1881; aged 73; died, September 11.

William A. Hutchins, Orangeville, Ill.; Rush Medical College, Chicago, 1885; aged 65; died, September 22.

Otto Moritz Schall, St. Louis; Barnes Medical College, St. Louis, 1904; died, September 11.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

ADROPSEDEMA

A Recrudescence of Shotgun Therapy

"Adropsedema," sold by the Van Seaton Chemical Company of Fort Worth, Texas, and Chicago, Ill., is a "dropsy cure" of the Anasarcin type. Recently the medical profession has received circulars exploiting its merits.

Twenty years ago "shotgun" proprietaries hindered therapeutic advance and rational drug therapy. The multiplicity of their ingredients made scientific judgment of their action impossible. The physician, attracted by advertisements in almost every medical journal and the panegyrics of detail men, sometimes put aside the instruction he had received in medical school and followed the extensive treatises and "hints for the busy doctor" which the beneficent proprietary fraternity lavished on him. Happily, the day of the complex mixture is practically over. The convincing reports of the Council on Pharmacy and Chemistry on such widely exploited preparations; the enlightening analyses of the A. M. A. Chemical Laboratory, showing that the declarations of composition by manufacturers were not to be taken for gospel truth; the exposures of the Bureau of Investigation (then the Propaganda Department), giving an insight into the personnel of the firms which marketed these mixtures and their methods of obtaining so-called therapeutic evidence—all these have brought home to the medical profession the uncertainty and folly of prescribing a heterogeneous mixture of drugs.

The effect which the educational activities of the American Medical Association has had on the "shotgun proprietary" can best be realized (1) by examining the advertising pages of those self-styled medical journals that still lend their support to the nostrum business and (2) by studying the advertising material sent to the physician through the mails. The complex mixtures which were extensively exploited twenty years ago are, as a rule, no longer the subject of blatant advertising. If they are advertised at all it is only by an occasional half-hearted announcement or circular. More important still, the pharmaceutical firms which formerly pushed imitations of all the widely advertised nostrums are no longer featuring this part of their business and are slowly but surely removing many of these formulas from their catalogues.

Adropsedema comes in the form of tablets—one hundred in a three-sided, prettily decorated tin box which will be sent for one dollar and twenty-five cents. According to this box, Adropsedema is "a scientific remedy for the relief of general dropsical conditions." For "dropsical conditions," *one or two tablets every four hours are to be taken, followed* the next morning by salts until desired results are obtained. As a 'heart tonic," one or two tablets are to be taken every four hours. While the style of the package and the directions which appear on it will no doubt lead to its use by the public, the promoters of this nostrum anticipate criticism by placing on the box the statement that this preparation should always be used under the direction of a physician.

In the marketing of complex mixtures, it is the custom to make much of the complexity: the asserted virtues of each ingredient are vaunted separately and then all are combined *to make a miraculous whole. Of course, its very complexity* makes it impossible to use such a preparation intelligently; but the promoter hopes to induce the thoughtless and uncritical to make a trial of the blunderbuss.

In line with precedent, the promotors of "Adropsedema" ask physicians to "study the formula." A formula which is given in a circular reads: strophanthin 1-240 gr.; spartein sulphate 1-64 gr.; "apocynin" 1-4 gr.; "ext. urginea scillae" 1-5 gr.; "gelsemin" 1-8 gr.; "extract sambucus" 1 gr.; ferrous carbonate 1-2 gr. Elsewhere the "formula" includes "cactus grandifolium, 4 gtt.," "gelsemium" instead of "gelsemin" and *"reduced iron" instead of ferrous carbonate. The "cactus* grandifolium, 4 gtt." probably refers to some liquid preparation of cactus grandiflorus.

So that the physician may the better "study the formula," the Van Seaton Chemical Company graciously supplies him with a statement of the virtues of each ingredient, except the "cactus grandifolium." The physician who cares to continue the study of this conglomeration beyond the point furnished by the manufacturer will appreciate the following excerpts from the Epitome of the U. S. Pharmacopeia and National Formulary published by the American Medical Association:

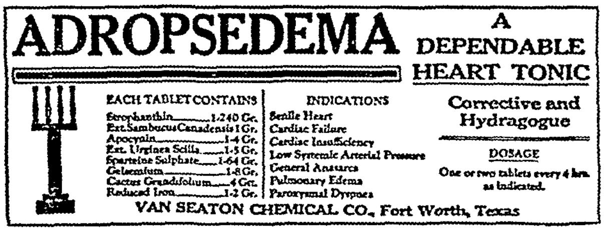
APOCYNUM (Canadian Hemp), N. F. "Action and uses: Cardiac tonic of digitalis group: unreliable as to rate of absorption." [The "formula" refers to "Apocynin," which is a name that has been applied to extractive preparations of indefinite composition of apocynum.]

SAMBUCUS (Elder Flowers), N. F. "Action and uses: Obsolete and worthless remedy in dropsy. Large doses are said to act like a hydragogue cathartic."

GELSEMIUM (Yellow Jasmine Root), U. S. P. "Action and uses: Used in migraine and neuralgia, and in the treatment of ovarian, rheumatic and uterine pain. Efficiency uncertain. Untoward symptoms sometimes result from comparatively small doses."

SPARTEIN SULPHATE, U. S. P. "Action and uses: Has been widely exploited as a diuretic, but on insufficient evidence. Is of little use and is now less frequently employed than formerly. Large doses slow and weaken the heart."

CACTUS GRANDIFLORUS (Night Blooming Cereus), N. F. "Action and uses: Used in neurotic heart disturbances; results probably imaginary. Drug apparently inactive."



ADROPSEDEMA
A DEPENDABLE HEART TONIC

EACH TABLET CONTAINS
Strophanthin 1-240 Gr.
Ext. Sambucus Canadensis 1 Gr.
Apocynin 1-4 Gr.
Ext. Urginea Scilla 1-5 Gr.
Sparteine Sulphate 1-64 Gr.
Gelsemium 1-8 Gr.
Cactus Grandifolium 4 Gr.
Reduced Iron 1-2 Gr.

INDICATIONS
Senile Heart
Cardiac Failure
Cardiac Insufficiency
Low Systemic Arterial Pressure
General Anasarca
Pulmonary Edema
Paroxysmal Dyspnea

Corrective and Hydragogue

DOSAGE
One or two tablets every 4 hrs. as indicated.

VAN SEATON CHEMICAL CO., Fort Worth, Texas

Greatly reduced facsimile of one of the advertisements used in exploiting "Adropsedema."

The quotations just given represented the estimate of the drugs in question of the Council on Pharmacy and Chemistry and appeared in "The Epitome," which was issued in 1916. Since then our knowledge of the real value of drugs such as apocynum, elder flowers and spartein has been crystallized. Of all the drugs named in the "adropsedema" formula, only three (strophantin, squill and ferrous carbonate) are to be found in the recently issued Pharmacopeia of the United States!

In the advertising it is claimed:

> "Adropsedema is used successfully in chronic myocardial insufficiency, Bright's disease, valvular lesions, endocarditis, acute myocarditis, functional diseases of the heart, or wherever the normal equilibrium between the arterial and venous systems is disturbed."

The thoughtless and ill-considered use of this preparation is suggested by statements such as:

> "It has demonstrated its adaptability in many forms of dropsy."
>
> " . . . absolutely devoid of the manifestations of gastric disorders and cumulative action so frequently attending the administration of the more powerful cardiac remedies separately."
>
> "Adropsedema does the work; what more do you want? When in suspense prescribe Adropsedema."
>
> "When in doubt, prescribe Adropsedema. Adropsedema for 'dropsies'; first, last and all the time."

In one of the circulars issued by the Van Seaton Chemical Company, Adropsedema is referred to as "a preparation with a conscience." Were inanimate objects possessed of a conscience, Adropsedema would no doubt feel thoroughly ashamed of itself. This also is applicable to the Van Seaton Chemical Company, which though composed of animates, may be charitably thought of as an inanimate entity. It is difficult to imagine how a member of a learned profession could satisfy his conscience were he to prescribe the unscientific mixture foisted on him under the name of "Adropsedema."

Correspondence

AMERICAN BIRTH CONTROL LEAGUE

To the Editor:—In THE JOURNAL, September 19, p. 908, a resolution on birth control is reported from a recent meeting of the Rock Island County Medical Society condemning affiliation by any member with the American Birth Control League and labeling such affiliation unethical and unprofessional conduct. This action impels me to state briefly the experiences of the Committee on Maternal Health with the officials of this league.

When the committee's review appeared in the *American Journal of Obstetrics and Gynecology,* Mrs. Sanger sent their medical director to ask how the criticisms of the league contained in that report could be met. He was referred to the Public Health Committee of the Academy of Medicine and submitted to it a proposition from the league to carry out any alterations in method that would make its practice professionally ethical. It developed that 7,000 physicians had applied to the league for information on contraception and that nearly 1,000 letters a week were received from the laity asking for counsel. A committee was appointed to investigate. It reported as follows:

> In view of the fact that many existing hospital clinics in the city of New York are reluctant to carry on such study; and those which have entered on it are not generally known to have undertaken it, there is a provisional need of a special clinic; that, although lawfully practicing physicians are permitted under the statute to give contraceptive advice "for the cure or prevention of disease," they do not usually take advantage of this provision of the law (Section 1145 of the penal law): Therefore, it is the opinion of your subcommittee that there is, for the time being, a need in New York City for a clinic under nonhospital auspices for the purpose described above, provided that this special clinic obtains legal sanction from the state board of charities, and that it has an adequate personnel and equipment for diagnosis and research, and an advisory board of gynecologists and obstetricians of recognized authority to guide its policies and work, and inspect it regularly.

Later, Mrs. Sanger appeared before the state board of charities and a plan was submitted whereby such a clinic should be under responsible and representative medical control. This plan is being actively pushed.

Further investigation by the Committee on Maternal Health developed the fact that the American Birth Control League has strongly opposed the Voluntary Parenthood League in the latter's contention that proper action was the removal by Congress of all restrictions on sending contraceptive information through the mails. In the contest for the Cummings-Vaile bill which proposed to make this alteration in the federal postal law, the Sanger group seems to have taken no part. On the contrary, this league's literature shows that it is working for the "doctors only" amendment. In conference with our committee's legal advisers, the American Birth Control League agreed to push such amendments as the one passed in May by the American Gynecological Society and the second endorsed at the last meeting of the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association. The Gynecological Society vote was a close one because of the inclusion of the word "reprints." There was no opposition raised at Atlantic City.

1. Standard medical and scientific journals and reprints therefrom and standard medical works which contain information with reference to the preventing of conception are not nonmailable under this section (federal postal law).
2. *Resolved,* That we hereby recommend the alteration of existing laws wherever necessary so that physicians may legally give contraceptive information to their patients in the regular course of practice.

The Committee on Maternal Health has secured, in seven gynecologic clinics in Greater New York, a study of indications for and methods and results of, birth regulation. These are, from north to south, Lebanon Hospital, the Woman's Hospital, Mount Sinai Hospital, Sloane Hospital, New York

Infirmary, Brooklyn Hospital and Long Island College Hospital. It also is investigating sterilization and sterility. Under complete medical control, with the endorsement of its plans by the New York Obstetrical Society, the Academy of Medicine and the American Gynecological Society, this committee is furthering and partly financing researches on long range methods of control of ovulation and spermatogenesis as well as the ordinary mechanical handicap methods. Our survey in France demonstrates that its medical profession cannot show what means have curtailed the birth rate; that Holland has not and has never had birth control clinics in any sense in which we use the word clinic, and has not gathered information on the subject, and that the several English clinics, lacking control by any gynecologist or obstetrician of standing, show no follow-up of value. We are, therefore, seeking for trustworthy information from every source, and would prize any returns from clinical studies on "therapeutic contraception" from Rock Island County, or a list of their institutions giving instruction to patients whose life or health would be jeopardized by pregnancy.

Robert L. Dickinson, M.D., New York.
Secretary, Committee on Maternal Health.

"ANACIN"

To the Editor:—In the article on this subject, page 1079, October 3, it is stated that Dr. F. W. Wittich developed a formula for a "patent medicine" and allowed it to be put on the market for indiscriminate sale to, and the uncritical use by, the public.

The undersigned is the president of the Heidbrink Company of Minneapolis, which is the owner of the Trade Mark "Anacin." This trade mark was acquired from a pharmacist in Minneapolis who claimed that the formula had been suggested to him by a number of prescriptions compounded by him for Dr. Wittich. This pharmacist had the name "Anacin" trade marked and he originated the name.

For a short time the sales manager printed on direction sheets accompanying each package "From a prescription of Dr. Wittich," with the idea of conforming to a rather extensive practice at that time of so accounting for proprietary medicines. This was done without my notice and without the knowledge or consent of Dr. Wittich.

When the matter was called to the attention of Dr. Wittich, he protested against the unwarranted use of his name, and the practice was stopped immediately and his name has never been so used since. At this time the inference that Dr. Wittich was connected with the manufacture and sale of Anacin was thoroughly investigated by the administrative board of the medical department of the University of Minnesota, which board completely exonerated him from any interest in or connection with the vending of "Anacin" or its use commercially.

At no time has Dr. Wittich had any interest in or connection with the manufacture and sale of "Anacin." He has never been a stockholder in our company and has never received a cent, either directly or indirectly, for the formula or sale of "Anacin."

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My unfortunate statement in this letter that the "Anacin" formula was worked out by Dr. Wittich and his associates should be corrected. The origin of this formula is as stated above.

The only other communication we ever had from Dr. Wittich with reference to "Anacin" was the latter part of 1922, when he advised us to change the formula.

All advertising such as illustrated in your article appeared long after any communication with Dr. Wittich, and he is in no manner responsible concerning it.

J. A. Heidbrink, D.D.S., Minneapolis.

USE OF GENTIAN VIOLET IN THRUSH

To the Editor:—Through a regrettable inadvertence in preparing our clinical note on the gentian violet treatment of thrush (The Journal, September 19, p. 900) we failed to mention the work of Churchman, whose priority in the experimental and clinical study of gentian violet is, of course, well known. We have found, since submitting our manuscript, that Churchman in 1921 (Further Studies of the Behavior of Bacteria Toward Gentian Violet, *J. Exper. Med.* **33**:569 [May] 1921) reported that "in a plain agar plate . . . strokes of stained gram-negative organisms, for example *Bacillus subtilis* and *Oidium albicans*, will not grow at all" and showed photographs illustrating the point. While our own study was made in ignorance of these observations, we take pleasure in acknowledging them now. It is, of course, gratifying to us to find experimental support for our clinical impressions.

Harold K. Faber, M.D.
Lloyd B. Dickey, M.D., San Francisco.

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To the Editor:—During a bacteriologic examination of the water coming from a certain reservoir, organisms were found belonging to the *B. coli* group, producing fermentation, acid and indol. In a search for the source of the contamination, a micro-organism possessing the same qualities in all respects was found in the colon of frogs infesting the reservoir. The following questions present themselves: (*a*) Are any methods known to differentiate between the human *B. coli* and that of the frog? (*b*) What is known of the pathogenicity of this micro-organism, and does its presence in water (all human sources of contamination having been excluded) make the water unfit for household use?

Peter Mjedloff, M.D., Puunene, Maui, H. I.

Answer.—Much work has been done on the perplexing question of the differentiation of the different members of the colon-aerogenes group of bacteria. It was supposed for a time by some that the aerogenes type of lactose fermenters was of less significance than the colon type in sanitary water examination and could be clearly distinguished from the latter. The methyl red positive and Voges-Proskauer negative cultures were commonly assumed to be of fecal origin and hence indicative of sewage contamination. Recent investigations, however, have shown that not all of the methyl red positive colon group are of fecal origin, since they are found in some abundance in certain uncontaminated soils. Less weight is therefore attached to these tests than formerly. The utilization of citrate proposed as a differential test by Koser (*J. Bacteriol.* 9:59 [Jan.] 1924) may prove a valuable differential test and may enable us to assign members of the colon-aerogenes group found in nature to a fecal or nonfecal source. At present the attempt to determine certainly whether a given culture of the colon-aerogenes group found in water is of human fecal origin meets almost insuperable difficulties. It need hardly be said that the interpretation of the presence of these organisms is based on the greater or less probability of their association with pathogenic intestinal forms. There is no reason to believe that the various members of this group as found in natural water are themselves able to produce infection when the water is used for drinking.

NEUROSINE

To the Editor:—I find that some physicians still use the discredited nostrum "Neurosine." Could you publish prominently the formula of the contents of each fluidounce as given by the manufacturers? That formula does not appear in the firm's primary advertising, and the physician who might be led by the insistent emphasis on its harmlessness to prescribe Neurosine could not realize the amount of bromid he would be prescribing. Oliver T. Osborne, M.D., New Haven, Conn.

Answer.—The Council on Pharmacy and Chemistry in a Report (The Journal, Jan. 9, 1915, p. 165) found Neurosine (Dios Chemical Company, St. Louis) to be a "shot gun" nostrum which violates practically every principle of modern therapeutics. This report was later reviewed at length (The Journal, April 27, 1918, p. 1251) with further confirmation of the Council's conclusions. The manufacturers still claim the formula then published, namely:

Each fluid ounce represents:
40 grains C. P. Potassium Bromide
40 grains C. P. Ammonium Bromide
40 grains C. P. Sodium Bromide
1 grain C. P. Zinc Bromide
32 grains Extract Lupuli
.60 grains Extract Cannabis Indica
.075 grains Extract Belladonna
.075 grains Extract Henbane
40 minims Extract Cascara Sagrada
.060 grains Oil Bitter Almonds
5% Alcohol and Aromatic Bitters

Neurosine therefore contains 121 grains of bromid in each fluidounce. When it is considered that the manufacturers recommend "the average dose of Neurosine" as "one dessert spoonful three or four times per diem," the fact appears that the thoughtless prescriber of this nostrum would be giving from approximately 90 to 120 grains (6 to 8 gm.) or more of bromids daily.

Useful Drugs, 1925, states under dosage for potassium bromid, "1 Gm. or 15 grains . . . after meals and at bed time. The dose may be increased to 5 Gm. if a powerful action is indicated." The danger of administering such a preparation as Neurosine without knowing its bromid content is, therefore, readily apparent.

SCOPOLAMIN IN OBSTETRICS

To the Editor:—A friendly controversy has occurred in our society as to the wisdom of ever using scopolamin (hyoscin) hydrobromid in obstetric cases. Will you give us your opinion as to the smallest dose that has ever proved fatal, and as to the dose that might ordinarily be expected to be fatal to an adult in good health? Kindly omit name.

J. A. R., New Mexico

Answer.—The lethal dose of scopolamin has not been determined for man (Witthaus and Becker). The smallest fatal dose of scopolamin hydrobromid recorded in the literature is 1/100 grain (0.6 mg.). This was given with one-eighth grain (8 mg.) of morphin, and the patient died two hours later (Ely).

Since there is a great difference in the ability of persons to recover from poisoning due to the atropin series, statements regarding "the dose that might ordinarily be expected to be fatal" may be misleading. In contrast to Ely's case are the reports of individuals who received as much as one-tenth grain (6 mg., Zimmerman), one-seventh grain (9 mg., Korn) and one-fifth grain (13 mg., Stolle), all of whom recovered.

Regarding the use of scopolamin in obstetric cases, there need be little fear of maternal mortality. De Lee says of scopolamin, "While the life dangers to the mother can be eliminated, the patient must be willing to pay the price of possible lacerations." Williams says, "It [scopolamin] has no effect on the maternal mortality." Haultain gave one patient in labor fifty-three doses of scopolamin, the first dose of which was 1/150 grain (0.4 mg.) and the fifty-two subsequent ones were each 1/450 grain (0.1 mg.). In a series of 1,604 deliveries, Van Hoosen gave twenty patients more than fifteen doses of scopolamin hydrobromid, each dose being 1/100 grain (0.6 mg.). One of these patients received thirty-one doses.

While a moderate number of fatal cases of scopolamin poisoning have been reported in the literature, careful examination of these reports reveals the fact that other drugs and anesthetics were used with the scopolamin and that death in some instances at least was not due to the scopolamin. Nicholson, who gave a kitten 3 grains (0.2 gm.) and a small cur 5 grains (0.3 gm.) of scopolamin without a fatal result, showed experimentally that the toxic doses of scopolamin and morphin correspond very closely to that of morphin alone for the animals used.

PROSTATITIS

To the Editor:—I am greatly interested in a case of prostatitis. A man, age 39, had gonorrhea about seventeen years ago, at which time he had an abscess which required catheterization for the urine for several days when the abscess broke into the urethra. Three months before I saw him he was troubled with distress before and during bowel movement, and his condition was diagnosed as a grade 4 prostatitis, seven infected teeth, and a grade 2 infection of the tonsils. Otherwise the examination was negative. He was advised to take massages of the prostate, which he has been taking for about three months, with considerable improvement in the symptoms. There is not any physician in any of our neighboring towns or cities that has had any experience with massaging in this condition. He was advised to have gentle massages. He wonders whether massages given by an inexperienced man might predispose to carcinoma. Have you any statistics to show the frequency of carcinoma following prostatitis? Is it a predisposing factor? Why was gentle massage recommended? Is there anything in diathermy or quartz lamp therapy or in the electrotherapeutic field that has shown good results in these cases? Could the infection have been in his prostate all these years since the gonorrhea? Would you advise exercise for him? If you should answer this in The Journal, please omit my name. M.D., Wisconsin.

Answer.—There is no tangible evidence that prostatitis is in any causative connection with cancer of this gland.

Brusque massage of the prostate may lead to injury to the glandular tissue and is apt to produce nervous symptoms. Massage of the prostate is safely done by using a club-shaped metallic instrument devised for this purpose. This appliance may be purchased at any medical supply house.

It is highly probable that the condition referred to dates back to the gonorrheal infection.

Diathermy furnishes excellent results in cases of chronic prostatitis. It is applied by placing a large indifferent electrode on the abdomen and a prostatic electrode in the rectum. The milliamperage is raised until the patient feels decided warmth but not heat in the rectum, and is maintained at this level during the entire treatment, which should last about twenty minutes. These treatments are repeated every third day until the patient is free from all symptoms.

There is no objection to moderate exercise except bicycle or horseback riding.

BENEDICT TEST FOR SUGAR

To the Editor:—In The Journal, July 11, in reply to an inquiry of Dr. George S. Silliman regarding Benedict's quantitative test for sugar, you end your reply by stating that "If this white precipitate of cuprous thiocyanate is not obtained, provided glucose is present there is probably something faulty with the solution."

My experience has been that, if the boiling solution becomes too concentrated, there is no precipitation of the cuprous thiocyanate due to its solubility in the concentrated alkaline solution. If water is added to this concentrated solution, as is usually done to keep the volume constant, the white cuprous thiocyanate will be precipitated, depending on the concentration of the solution and the amount of cuprous thiocyanate formed.

The correct end-point is the disappearance of the blue color.

George H. Chapman, B.A.Sc., New York.

DISPENSING NARCOTIC MIXTURES

To the Editor:—A traveling salesman for a pharmaceutical house informs me that a physician who adds a narcotic drug to a cough mixture for administration to one of the physician's patients is liable under the Harrison Narcotic Act to the payment of a tax as a manufacturer. Is this correct? ———, Iowa.

Answer.—No. A physician is authorized to dispense narcotic drugs to patients whom he personally attends. The law does not limit the form in which he may dispense them. The Harrison Narcotic Act defines a manufacturer as one who manufactures or compounds narcotic drugs for sale or distribution.

Infirmary, Brooklyn Hospital and Long Island College Hospital. It also is investigating sterilization and sterility. Under complete medical control, with the endorsement of its plans by the New York Obstetrical Society, the Academy of Medicine and the American Gynecological Society, this committee is furthering and partly financing researches on long range methods of control of ovulation and spermatogenesis as well as the ordinary mechanical handicap methods. Our survey in France demonstrates that its medical profession cannot show what means have curtailed the birth rate; that Holland has not and has never had birth control clinics in any sense in which we use the word clinic, and has not gathered information on the subject, and that the several English clinics, lacking control by any gynecologist or obstetrician of standing, show no follow-up of value. We are, therefore, seeking for trustworthy information from every source, and would prize any returns from clinical studies on "therapeutic contraception" from Rock Island County, or a list of their institutions giving instruction to patients whose life or health would be jeopardized by pregnancy.

Robert L. Dickinson, M.D., New York.
Secretary, Committee on Maternal Health.

"ANACIN"

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Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

American Board of Otolaryngology: Chicago, Oct. 19. Sec., Dr. H. W. Loeb, 1402 South Grand Blvd., St. Louis, Mo.

Arkansas: Little Rock, Nov. 10-11. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville.

California: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Connecticut: New Haven, Nov. 10. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, Oct. 13. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Florida: Tallahassee, Oct. 13-14. Sec., Dr. W. M. Rowlett, Citizens Bank Building, Tampa.

Georgia: Atlanta, Oct. 13-15. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Oct. 12-15. Sec., Dr. Guy C. Milnor, 401 Beretania St., Honolulu.

Iowa: Des Moines, Oct. 14-16. Dir. of Examinations and Licenses, Mr. H. W. Grefe, Des Moines.

Kansas: Topeka, Oct. 13. Sec., Dr. Albert S. Ross, Sabetha.

Maine: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Massachusetts: Boston, Nov. 10-12. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

Michigan: Lansing, Oct. 13-15. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

Missouri: Kansas City, Oct. 27-30. Sec., Dr. James Stewart, Jefferson City.

Nevada: Carson City, Nov. 2. Sec., Dr. Simeon L. Lee, Carson City.

New Jersey: Trenton, Oct. 20-21. Sec., Dr. Alex. Macalister, Trenton Trust Bldg., Trenton.

New Mexico: Santa Fe, Oct. 12-13. Sec., Dr. W. T. Joyner, Roswell.

Philippine Islands: Manila, Nov. 10. Sec., Dr. Jose V. Gloria, 686 Rizal Ave., Manila.

South Carolina: Columbia, Nov. 10. Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

West Virginia: Charleston, Oct. 13. Sec., Dr. W. T. Henshaw, Charleston.

District of Columbia July Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, July 14, 1925. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Fifty-nine candidates were examined, fifty-eight passed and one failed. Four candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Georgetown University	(1925, 7)	83.4, 85.2, 86, 87.1, 88, 88.8, 90.9
George Washington University	(1925, 22)	80.3, 80.5, 80.9, 81.3, 81.4, 81.8, 82, 82.4, 82.5, 82.5, 82.9, 84.6, 85.3, 86.3, 86.8, 87, 87.1, 87.9, 89.9, 90, 90.1, 92
Howard University School of Medicine	(1924, 2) (1925, 16)	81.3, 81.8 75, 75, 77, 77.3, 77.5, 77.5, 77.6, 78.9, 79.6, 81.1, 81.2, 84, 85.9, 86, 87, 88.3
Johns Hopkins University	(1923) 87, (1925)	83.5
College of Physicians and Surgeons, Boston	(1915)	75
Harvard University	(1906)	75
Tufts College Medical School	(1924, 2)	87.4, 87.6
University of Buffalo Department of Medicine	(1916)	86.4
University of Tennessee College of Medicine	(1925)	80.3
Medical College of Virginia	(1924)	80.4
University of Virginia Department of Medicine	(1921)	84.2
University of Tübingen, Germany	(1922)*	80.9

College FAILED	Year Grad.	Per Cent.
Woman's Medical College of Pennsylvania	(1889)	47.6

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland School of Medicine	(1885)	W. Virginia
John A. Creighton Medical College	(1906)	Nebraska
College of Phys. and Surgs. in the City of New York	(1887)	New York
Medical College of Virginia	(1914)	Virginia

* Graduation not verified by the American Medical Association.

South Dakota July Examination

Dr. H. P. Kenaston, director, South Dakota Division of Medical Licensure, reports the oral and written examination held at Deadwood, July 21-22, 1925. The examination covered 15 subjects and included 100 questions. An average of 75 per cent. was required to pass. Nine candidates were examined, all of whom passed. Six candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1903)	83.7
Rush Medical College	(1923, 2) 89.2, 89.5, (1925)	89.3
University of Illinois College of Medicine	(1925)	86.7
University of Minnesota Medical School	(1925)	86.7
St. Louis University School of Medicine	(1924)	84.3, 89.7
Memphis Hospital Medical College	(1911)	75

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School	(1899)	Wisconsin
Univ. of Minnesota Med. Sch.	(1920), (1921), (1923), (1925)	Minnesota
University of Nebraska College of Medicine	(1924)	Wyoming

Utah July Examination

Mr. J. T. Hammond, director of the Utah Department of Registration, reports the written examination held at Salt Lake City, July 7, 1925. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seven candidates were examined, all of whom passed. Seven candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Louisville	(1925)	80.7
Harvard University	(1924)	82.9
Washington University School of Med.	(1923) 85.7, (1924)	85.4
University of Pennsylvania	(1924)	82.2, 82.7, 85.3

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George [illegible]	[illegible])	Dist. Colum.
Rush [illegible]	[illegible]	Illinois
State [illegible]	[illegible]	Iowa
Barnes Medical College	(1898)	Washington
Creighton Medical College	(1925)	Nebraska
Western Reserve University School of Medicine	(1924)	Ohio
Ohio State University College of Medicine	(1924)	Ohio

Book Notices

An Approach to Social Medicine. By Francis Lee Dunham, M.A., M.D., Lecturer on Social Medicine, Johns Hopkins University. Cloth. Price, $4. Pp. 242, with 10 illustrations. Baltimore: Williams & Wilkins Company, 1925.

Dr. Dunham has had wide experience "as consulting psychiatrist to various civic and private welfare agencies, such as hospitals, bureaus and courts." In the classroom, he has related this experience to the past and the present, and, constructively, to the future. These elements he has compressed into a small book. The subject matter is given in the author's own summary:

> Looking at our subject in retrospect, we find a general interest in conduct, justifying its closer study as a scientific field not inaptly termed Social Medicine. . . . Philosophical, historical and experimental data contribute to an analysis of social problems and suggest ways of harmonizing behavior and of developing conduct. . . . In this development of culture the subject's historical record is utilized as an important technical instrument, revealing ancestral tendencies and personal characteristics relating to health, character and mentality. . . . A biological approach is advocated and the basis and organization of character are considered from four angles, each of which serves to support a typical social group. When correlated with intelligence these groups serve to differentiate four types of social value. . . . Physicochemical energy is recognized as the fundamental cause of social phenomena whose modes of action or forces are connected with the physiological needs of nutrition, protection and perpetuation of species modified by conditions of society. . . . As right slowly supplants might in disposing of social differences, evidence based on experiment takes the place of dogmatic belief. What the individual does must be measured by what he is, the relativity of personality and surroundings tempering our estimate of conduct. . . . Efforts to deal justly with the individual and to protect the group rely greatly upon intelligence and health but mostly upon character, which, as Matthew Arnold often stated, is three fourths of life.

The book deals with a difficult subject and is not easy reading. Involved sentences and frequent Johnsonian diction make it harder than necessary. The following sentence is one of the worst examples:

> As an evolutional consequence of cosmic phenomena man shares with other physical components of his environment, conforming to the theory that "space, time and matter are not independent concepts but are interwoven upon each other," in general probably satisfying the conditions of electrical energy.

Some medical men, furthermore, would consider prophecy strained when Dr. Dunham forecasts that "quantitative estimates of character" may be made by "analyses of glandular secretion and their effects in producing affective phenomena." It is, however, a forward looking, stimulating and essentially sound book; and the first chapter, together with the many record forms of the appendix, make it a practical one as well.

Modern Aspects of Syphilis. By M. J. Horgan, B.A., M.B., B.Ch. Cloth. Price, $1.75. Pp. 136. New York: Oxford University Press, 1923.

This is not a comprehensive treatise, but is a timely presentation of some of the problems of syphilis. Chief attention is given to some of the aspects of cerebrospinal syphilis and its behavior under modern methods of study. Other topics are the pathology of syphilis, nonspecific factors in the control of syphilis, and certain phases of specific therapy.

Physiologie und Pathologie der Leber nach ihrem Heutigen Stande. Von Professor Dr. Franz Fischler. Second edition. Paper. Price, 15 goldmarks. Pp. 310, with 9 illustrations. Berlin: Julius Springer, 1925.

The study of the functions of the liver has always been an interesting subject for investigators. From the time of the crude conception of the functions of the liver held by ancient physicians to that of recent time is a long period of years. The bulk of the information, however, has been obtained only comparatively recently by the aid of the exhaustive experimental study of the type Dr. Fischler has made in the preparation of his monograph on the physiology of the liver. Most of the information has been obtained working with an Eck's fistula or a reversed Eck's fistula, made by an anastomosis of the portal vein and inferior vena cava and the ligation of the vena cava above the anastomosis. Much of the work reported is confirmation of work already done. The rôle of the liver in the metabolism of carbohydrates, fats and proteins, its ability to store these substances, to be drawn on when required, is fully described. He describes a condition of meat intoxication with symptoms of alkalosis in which the liver plays an important part. Another form of intoxication occurs when the body is deprived of carbohydrates. The rôle of the liver in the building up and breaking down of the "bausteine" and disposal of nitrogenous residue is fully described. From a technical and experimental point of view and for workers in this field, this is an excellent presentation of the subject, but for the clinician it is hardly practical. The bibliography is complete.

Clinical Features of Heart Disease. An Interpretation of the Mechanics of Diagnosis for Practitioners. By Leroy Crummer, M.D., Professor of Medicine, University of Nebraska. Introduction by Emanuel Libman, M.D., Physician to Mount Sinai Hospital. Cloth. Price, $3. Pp. 353. New York: Paul B. Hoeber, Inc., 1925.

Appearing at a time when the literature on heart disease is abundant, if not overabundant, this volume, by its balance and perspective, finds a place that has not been filled in American literature. For this reason it is all the more regrettable that the author sometimes permits himself to be more dogmatic than the state of our knowledge warrants. The more critical reader may find also many other places in which he differs in opinion with the author, but where a definitely stated opinion adds to the clarity and the teaching value of the book. The book is purely clinical. The author begins with the methods of diagnosis, considering first of all the importance of an adequate history. Then follow chapters on inspection, palpation, percussion and auscultation. Laboratory methods are left to textbooks dealing especially with those subjects. As the author states, the clinician who understands the physiologic basis of cardiac irregularities can diagnose them clinically at the bedside. A little more detail in places might make the clinical differentiation sharper. Mitral and aortic disease are considered in separate chapters, as is cardiovascular renal disease. The chapter on decompensation is concerned with the symptoms of cardiac insufficiency and their significance. Treatment is discussed, and then follow chapters on cardiac neuroses and cardiac emergencies, in the latter of which angina pectoris is included. The book may be read with profit by any clinician, but can be especially recommended to those in general practice whose training antedated our present conception of heart disease. It will also be of value to students confused by too great wealth of detail, and overemphasis on the importance of laboratory methods.

Medicolegal

Mental Derangement Sufficient to Invalidate a Will

(In re Perkins' Estate (Calif.), 235 Pac. R. 45)

The Supreme Court of California, in reversing a judgment that denied the probate of a will, says that not every mental departure from the normal will destroy a testamentary disposition, otherwise valid, of the testator's estate. It is not the rule of law that no person who is insane may make a valid will. The real rule is that the will of a person, who by reason of insanity is incapable of making valid testamentary disposition of his estate, shall not be upheld. Mental derangement sufficient to invalidate a will must be insanity in one of two forms: (1) Insanity of such broad character as to establish mental incompetence generally; or (2) some specific and narrower form of insanity under which the testator is the victim of some hallucination or delusion. Even in the latter class of cases it is not sufficient merely to establish that a testator was the victim of some hallucination or delusion. The evidence must establish that the will itself was the creature or product of such hallucination or delusion; that the hallucination or delusion bore directly on and influenced the creation and terms of the testamentary instrument. The evidence must establish, in addition to the fact of the existence of the hallucinations or delusions, the fact that by reason of these hallucinations or delusions the testator devised or bequeathed his property in a way which, except for the existence of such delusions, he would not have done. In short, the abnormality of mind must have had a direct influence on the testamentary act. Care must be taken to differentiate between mere unreasonable opinions and mental derangements. Testamentary capacity does not depend on the testator's ability to reason logically or on his freedom from prejudice. A belief may be illogical or preposterous, but it is not therefore evidence of insanity.

Physician Keeping Liquor in His Office—"White Mule"

(State v. Ryan (Mo.), 269 S. W. R. 627)

The Springfield (Mo.) Court of Appeals says that it appeared from the evidence that a sheriff who raided the defendant's office found therein about a gallon and a half of alcohol, a quart of red whisky, and a jug which contained one-half pint of what was called "white mule." For the defendant it was shown that he was a regularly registered and practicing physician and had a permit from the county court to issue prescriptions for intoxicating liquor. The defendant testified, and introduced in evidence exhibits to show that he had purchased the liquor under the federal regulations relating to the purchase of liquor by physicians for use in the practice of their profession. He also testified that he bought the liquor for medical purposes. The case was tried on the theory that the fact that the defendant was a physician did not authorize him to keep intoxicating liquor in his office for use in his practice as a physician, the jury being instructed that if it believed from the evidence that he had such intoxicating liquor in his office used by him as a physician, and not in his private residence, it could not acquit him, even though it might find from the testimony that he had secured a permit from the federal government to purchase the liquor for use in prescribing it in his practice as a physician. That instruction was erroneous, in consequence of which a judgment of conviction of the unlawful possession of intoxicating liquor is reversed, the cause being remanded. The court does not think that the provision of the state prohibiton act that a person who has lawfully obtained intoxicating liquor and is using it in a lawful way may keep it in his private residence applies to a physician engaged in the legitimate practice of his profession. If this defendant had the right to prescribe and administer intoxicating liquor either alone or as part of a compound as a medicine, then, of necessity, he must be permitted to possess the liquor to be used for that purpose at his office where he practiced his profession.

But a physician may not use his authority as a physician to cover up violations of the law. His good faith may be inquired into. There was evidence enough in this case to take to the jury the question of the good faith of the defendant and the purpose for which he had the intoxicating liquor in his possession in his office. The sheriff testified that part of the liquor found in the defendant's office was what he called "white mule." This "white mule" was whisky of such a low grade that no reputable physician would either prescribe or dispense it as a medicine. If the defendant had intoxicating liquor in his possession for any purpose other than for legitimate use in the legitimate practice of his profession, he should be convicted. If he kept it in his office in good faith for use in the legitimate practice of his profession, then his possession was lawful, and he should be acquitted.

Promise to Pay for Services for Son and His Old Bill—Impeachment of Witness

(Evans v. Shaw (Texas), 268 S. W. R. 1037)

The Court of Appeals of Texas, in affirming a judgment for $188 in favor of plaintiff Shaw, says that he sued the defendant for that amount for professional services in treating Little Tom Evans and his wife, Little Tom Evans being an adult son of defendant Evans. The plaintiff alleged that, being called to see Little Tom, he found him suffering with a severe attack of pneumonia, and that as Little Tom had not paid his bill of $102 for treatments of himself and wife in the previous year, the plaintiff informed defendant Evans that unless the latter would agree to pay, not only for his services from that date, but also the old bill of $102, he would not treat Little Tom any further, to make which payments the defendant then agreed; that if the defendant had not made the promise, he would not have treated Little Tom during his last sickness; and that his charges for such treatment amounted to $86, making the total sum sued for $188. The defendant denied that he had ever made any such agreement with the plaintiff as was alleged, and that, if any such agreement was made, it, not being in writing, was void under the statute of frauds. The verdict of the jury for the plaintiff is interpreted as a finding that the defendant did make the agreement alleged, although the evidence as to whether he did or not was sufficient to sustain a finding either way.

As to the $86 of the account, the plaintiff, in treating Little Tom, was extending credit to the defendant, and the defendant's obligation to pay was an original primary obligation. It was the defendant's own debt, and the promise to pay for the services rendered after the promise was made never at any time came within the purview of the statute of frauds requiring a promise to answer for the debt of another, or a memorandum of the promise, to be in writing signed by the person to be charged therewith or by some one by him thereunto authorized. Clearly the plaintiff was entitled to recover, under the findings of the jury, this much of the account sued on.

For the treatments for which the $102 was charged, the plaintiff extended credit solely to Little Tom Evans, and this much of the account was a debt against him alone, and continued a debt against him alone up to and at the time of the defendant's verbal agreement to pay it. Was the defendant's promise to pay this part of the debt within the statute? This question required a good deal of research. It was true that Little Tom Evans was an adult son of the defendant, 25 years of age, not dependent on the defendant, nor a member of his family, and there was no legal obligation on the part of the defendant to furnish him medical treatment; but, at the time of the conversation between the defendant and the plaintiff, the defendant's son was a very sick man, and died a few days later. The son was in a helpless condition, unable on his own responsibility to secure treatment by the plaintiff. There was a moral obligation and duty on the part of the defendant to secure such treatment, and no doubt the defendant felt very keenly this moral obligation on his part, and so, for the purpose, not primarily, of paying or securing his son's debt, but to subserve a purpose of his own—the performance of this moral obligation to his son—he agreed unconditionally to pay, not only for future treatments, but also the old bill of $102. The promise of the defendant having been made by him to subserve a purpose of his own, and not primarily to settle his son's debt, such promise was not within the statute of frauds, and created a primary obligation on the part of the defendant for the $102, as well as for the future treatments.

The defendant complained of the action of the trial court in permitting the plaintiff to impeach the testimony of a witness for the defendant by showing, on cross-examination, that the witness had taken chloroform in an attempted suicide, and that the witness still owed the plaintiff for services rendered him at that time. This assignment of error was not properly presented, but the court will say that, if it were to consider this assignment, it would be compelled to overrule it, as it presented no error.

Reference by Expert Witness to Statistics

(Forrest v. Fink (Calif.), 234 Pac. R. 860)

The District Court of Appeal of California, First District, Division 1, says that in this action to recover damages for personal injuries a medical witness was asked: "Have you made a study of the statistics relative to brain tumors, the percentage of cases of brain tumor which give a previous history of either a fracture of the skull or brain injury?" His answer was: "Yes, 27 per cent. of them give a history of such injury." Later the witness said: "Well, of course, he may get over this. The chances are two to one from statistics that I have already quoted that he will not. He may go on the way he is now, and he may get a good deal worse." It was contended that the physician, instead of giving his own opinion, fortifying it by his reading, if he wished, based his entire answer on the statistics, which were admittedly hearsay. But the court does not think that there was any error in permitting the witness to testify as to what statistics showed concerning the result of injuries received similar to those received by the plaintiff. A witness to qualify as an expert must show himself to be skilled in his business or profession, but there is no precise rule as to how that skill must be acquired. He may be an expert through knowledge derived from the study of the subject only. An expert witness might reasonably be expected to rely, to a great extent, on the statistics he has studied, which must be taken into consideration with his observation and experience. In the case at bar the witness referred to statistics. The court feels that the situation here was entirely different from allowing medical or scientific books to be read to the jury or seeking to influence them by opinions or theories contained in such books. His answer must be assumed to have been a conclusion reached by him after a judicious comparison of all that he had read or learned on the subject, and on his opinion as well as its source, he could be subjected to the most rigid cross-examination. A hearing was denied by the Supreme Court of California.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 20-24. Dr. Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Secretary.
American Association of Railway Surgeons, Chicago, Oct. 21-23. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.
American College of Radiology and Physiotherapy, Chicago, Oct. 19-22. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Neb., Secretary.
American College of Surgeons, Philadelphia, Oct. 26-30. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.
American Public Health Association, St. Louis, Oct. 19-22. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.
Central Neuropsychiatric Association, Ann Arbor, Oct. 23-24. Dr. Karl A. Menninger, Neuropsychiatric Clinic, Topeka, Kan., Secretary.
Central States Pediatric Society, Chicago, November 6-7. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.
Delaware State Medical Society, Wilmington, Oct. 13-14. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.
District of Columbia, Medical Society of, Washington, D. C., Dec. 2. Dr. C. B. Conklin, 500 Medical Science Bldg., Washington, D. C., Sec'y.
Interstate Postgraduate Assembly of America, St. Paul, Minn., Oct. 12-16. Dr. W. B. Peck, 82 Stephenson St., Freeport, Ill., Managing Director.
Southern Medical Association, Dallas, Texas, November 9-12. Mr. C. P. Loranz, Empire Bldg., Birmingham, Ala., Secretary.
Vermont State Medical Society, St. Johnsbury, Oct. 15-16. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.
Virginia, Medical Society of, Richmond, Oct. 13-16. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

170: 157-312 (Aug.) 1925

*Clinical Value of Ephedrin. T. G. Miller, Philadelphia.—p. 157.
*One Hundred Consecutive Cholecystectomies. W. O. Johnson, Cleveland.—p. 181.
*Twenty-Eight Cases of Purpura Hemorrhagica in Which Splenectomy Was Performed. H. Z. Giffin and J. K. Holloway, Rochester, Minn. —p. 186.
*Clinical Study of Quinidin Therapy. H. H. Riecker, New York.—p. 205.
*Experimental Gastric and Duodenal Inflammation and Ulcer. A. Hoffmann, Anaheim, Calif.—p. 212.
Sigmoidoscopic Picture of Chronic Ulcerative Colitis (Nonspecific). B. B. Crohn and H. Rosenberg, New York.—p. 220.
Possible Relationship Between Guanidin and High Blood Pressure. R. H. Major, Kansas City, Kan.—p. 229.
*Calorimetric Studies of Extremities Following Lumbar Sympathetic Ramisection and Ganglionectomy. G. E. Brown and A. W. Adson, Rochester, Minn.—p. 232.
*Diseases of Coronary Arteries. M. H. Nathanson, Minneapolis.—p. 240.
*Rectal Ether Analgesia in Childbirth. J. A. Harrar, New York.—p. 256.
Diaphragmatic Hernia of Cardia of Stomach Through Esophageal Orifice. J. Friedenwald and M. Feldman, Baltimore.—p. 263.
*Iodin Hyperthyroidism. A. S. Jackson, Madison, Wis.—p. 271.

Ephedrin.—Ephedrin is the name given to an active principle of an Asiatic drug *Ma Huang (Ephedra vulgaria* var. helvetica), which has been used in the practice of medicine in China for more than 5,000 years. Ephedrin has general physiologic effects in man similar to those produced by epinephrin. It has, however, distinct practical advantages over epinephrin because of its more prolonged action and the fact that it can be administered affectively by mouth. Miller reports his clinical observations with this drug. In doses of from 50 to 125 mg., given orally or subcutaneously, ephedrin sulphate usually raises the systolic and diastolic blood pressure and decreases the pulse rate for a period of several hours. It also stimulates the heart action and has a tendency to increase the output of urine. It sometimes increases the basal metabolism. Its administration caused temporary improvement in two cases of Addison's disease, gave relief in the paroxysmal attacks of certain cases of asthma, relieved the subjective sensations in a case of urticaria, caused a disappearance of urticarial lesions in a case of serum disease, and produced marked temporary improvement in a case of circulatory failure incident to myocardial disease and the evacuation of an overfilled urinary bladder. In a single case of complete heart block it produced an increase in both the auricular and the ventricular rates and caused alterations in the character of the electrocardiographic tracings. Locally applied to the nasal mucous membrane, ephedrin causes prompt contraction which persists for more than three hours and has no local irritant effect. It is believed that the wide range of usefulness of ephedrin will be found in the treatment of asthma and of acute circulatory depression, and in the management of certain congestive nasal conditions.

Bacteriology of Gallbladder Diseases.—A bacteriologic and histologic study was made by Johnson of 100 cases of gallbladder lesions together with a histologic study of the associated appendixes. Organisms were cultured from the fluid contents of pathologic gallbladders in less than one third of the cases in this series. *B. coli* was the predominating organism in the positive cultures. The highest percentage of positive cultures was obtained from the gallbladders which contained the lowest percentage of bile salts. Even after double ligation of the cystic duct there was an escape of bile in two cases, a finding which reinforces the argument for drainage of the abdomen after cholecystectomy. Histologic changes seem to indicate that the lesions in the appendix are of longer duration than the other associated gallbladder lesions. Histologically, pathologic gallbladders with culturable organisms in their fluid content, have a far higher mucus content than normal gallbladders. The walls show an increase in fat content and thickening.

Purpura Hemorrhagica with Splenectomy.—In six of the twenty-six cases analyzed by Giffin and Holloway slight epistaxis occurred chiefly during the first few days after operation. In all cases, so far as can be ascertained, these slight evidences of the hemorrhagic tendency were transient. Their appearance suggests the possibility that foci of infection might still be present in these cases. The logical procedure in cases of purpura hemorrhagica would seem to be a splenectomy followed by elimination of all possible foci; the latter portion of the treatment cannot be safely neglected. In most of the cases before operation, at some time in the course of each case, the platelets numbered less than 50,000. In a few instances the counts were in the hundreds. After operation the platelets almost always rose rapidly to above normal, and in three instances more than 1,000,000 are recorded. In two instances they remained below 50,000 but even in these cases the ultimate results were satisfactory. The facts indicate that the increased number of platelets is only one factor in the arrest of purpuric manifestations. The tourniquet test was always positive when applied during active periods of purpura and not infrequently during remissions. After operation it became negative soon after the petechiae and ecchymoses faded. In many of the cases the bleeding time was longer than eight minutes and occasionally longer than one hour, although not infrequently it was approximately five or six minutes. After splenectomy there was great variability in the promptness with which the bleeding time became reduced. In three cases it is reported as normal within a few hours. In most of the cases it became reduced quite promptly to less than eight minutes, and in from five to eighteen days to less than three minutes. The recurrence of petechiae in some of the cases, the slowness with which the bleeding time becomes reduced, and the variability in connection with the recovery of the retractility of the clot, indicate that although a change has been brought about by splenectomy sufficient to arrest gross hemorrhage, the finer mechanism of coagulation requires a complex readjustment on the part of the organism, which may or may not become complete and permanent. A few of the patients have remained somewhat anemic. However, the uniformly good results indicate at least a temporary cure.

Quinidin Therapy.—Riecker reports fifty-two cases of auricular fibrillation with restoration of the normal rhythm in 79 per cent. following quinidin therapy. He describes in detail the method employed. The use of quinidin sulphate is justified and seems indicated in all cases of auricular fibrillation, except in those in which there are signs of recent embolism, marked decompensation of the heart or early appearance of the symptoms of cinchonism. Both the temporary and permanent conversion of the fibrillation to a normal sinus rhythm by the drug seems to be favorably influenced by the presence of a delayed conduction time at the auriculoventricular junction. The careful management of cases with regard to exercise, mental excitement and fever during quinidin administration greatly facilitates the favorable action of the drug. The administration of quinidin is most effectual when given continuously through the day and night as suggested by Lewis. The use of digatalis to maintain the rhythm after its conversion seems to be even more important than that of quinidin in chronic auricular fibrillation.

Bacteriology of Peptic Ulcer.—Hoffmann describes the morphology, isolation and recovery, cultural characteristics and pathogenicity, in the guinea-pig, of an organism isolated from the stomach contents of two patients, diagnosed as having gastric or duodenal ulcer, and from tonsil emulsion of a third patient, who also was believed to have a gastric or duodenal ulcer. Guinea-pigs inoculated with the specific organism, intra-abdominally or intramuscularly, showed lesions in the duodenum or stomach, or both, in which the bacillus was demonstrated. Sterile filtrates of the specific organism produced the same lesions as when the organism itself was used.

Lumbar Sympathetic Ramisection and Ganglionectomy.—Five cases of spastic paraplegia are reported by Brown and Adson in which bilateral lumbar sympathetic ramisection and ganglionectomy was performed. The second, third and fourth lumbar ganglions with the sympathetic trunk were removed and the rami divided. During the postoperative period marked increase in the skin temperature of the legs and feet was observed. Calorimetric studies with the foot calorimeter demonstrated marked increased heat production and heat radiation. There was complete absence of sweating in the legs in two cases. The vasomotor dilatation in the lower extremities, indicated by the calorimetric studies, was borne out by the clinical observations in respect to increased heat of the skin.

Clinical Picture of Coronary Sclerosis.—An attempt was made by Nathanson to construct a clinical picture of coronary sclerosis by an analysis of a series of fatal cases which came to necropsy. The following points are brought out by this study: Coronary sclerosis is most common in males and in the age period between 50 and 70 years. The outstanding clinical feature is the presence of attacks, usually of pain, less frequently of acute respiratory distress. The pain is most often in the chest, but abdominal attacks are not uncommon. These attacks occur with either of the following combinations: (*a*) normal sized heart, with no evidence of cardiac failure, 37.2 per cent.; (*b*) normal sized heart, cardiac failure present, 2.6 per cent.; (*c*) cardiac enlargement, congestive failure present, 38 per cent. The clinical features of coronary thrombosis are essentially similar to those of coronary sclerosis; thrombosis, therefore, should not be considered as a clinical entity but merely as a complication of coronary sclerosis. The outstanding pathologic features are the following: Changes in the coronary arteries are most marked in the left branch. In addition to coronary sclerosis, thrombosis occurs in approximately one fifth of the cases. Myocardial involvement paralleling the degree of coronary sclerosis is a constant finding. Lesions in the aorta of any significance are present in but a small percentage.

Rectal Ether Analgesia in Childbirth.—Harrar is convinced that rectal ether anesthesia is the safest and most effective method for the relief of the pains of childbirth over a period of hours that has so far been devised. Its applicability is much greater than that of scopolamin amnesia. It can be used safely and effectively by the physicians in home confinements, and does not require the services of a trained anesthetist. The drugs required, morphin, magnesium sulphate, ether and quinin, are easily obtained and well known in their action. The quinin is found to be an essential ingredient in the rectal instillation formula. The only contraindication to the procedure is uterine inertia, and the only restriction is not to start too soon. The woman must be in active labor, that is, pains every five minutes, last forty seconds by the watch, and in a primipara preferably the cervix should have attained a dilatation of two or more finger tips. The mechanism of labor must be as closely followed by the obstetrician as if no analgesia were being employed.

Iodin Hyperthyroidism.—The popular enthusiasm which has supported the prophylactic treatment of simple colloid goiter, together with the discovery of the efficacy of iodin in the treatment of exophthalmic goiter, Jackson says, has greatly increased the number of cases of iodin hyperthyroidism. He has seen thirty-eight cases in two years. If an early diagnosis is made, medical treatment may abort the toxic symptoms. Thyroidectomy is indicated when the condition does not yield to medical measures. The pathologic picture is not characteristic. Grossly, the gland has the typical appearance of an adenomatous goiter containing degenerated, cystic, fibrous and calcareous encapsulated nodules. Colloid may be seen in large amounts. The microscopic picture shows acini of variable size, lined with flat, cuboid cells and filled with colloid. Fetal acini and occasional small areas of hypertrophic cells are found.

Archives of Surgery, Chicago

2: 329-488 (Sept.) 1925

*Chronic Subdural Hematoma. Relation to Pachymeningitis Hemorrhagica. T. J. Putnam, Boston.—p. 329.
*Localization of Lung Abscess by Roentgen Ray; Use of Hirtz Compass. L. R. Sante and E. P. Lehman, St. Louis.—p. 394.
*Remote Sequelae of Rectal Implantation of Ureters for Exstrophy. Findings at Necropsy Fourteen Years After Bergenhem Operation. DeW. O. Richey, Pittsburgh.—p. 408.
*Congenital Abnormalities of Intestine. R. E. Farr and C. W. Brunkow, Minneapolis.—p. 417.
*Fracture of Skull: Analysis of One Hundred and Seventy-One Proved Cases. C. W. Rand and J. M. Nielsen, Los Angeles.—p. 434.
Benign Stricture of Bile Ducts. E. S. Judd and V. G. Burden, Rochester, Minn.—p. 459.
Twenty-Seventh Report of Progress in Orthopedic Surgery. N. Allison et al., Boston.—p. 473.

Chronic Subdural Hematoma.—Putnam discusses the pathology of these tumors, their relation to pachymeningitis and their surgical treatment. Eleven cases are reported, an analysis of which shows that an apparently insignificant trauma to the head may, in certain persons, be followed, after a latent interval which varies from a few hours to months or even years, by symptoms of cortical irritation and of intracranial pressure due to a subdural hematoma. These cases are less rare than was formerly supposed. Clinically, after a period of headache, these patients show an extraordinary variability of symptoms, particularly in the intellectual sphere. They are prone to psychoses and often become irritable, indecent and unmanageable. Choked disk is apt to be present and a frontal lobe tumor suspected. At operation or necropsy, a subdural hematoma will be found, on one or both sides, enclosed in a continuous membrane slightly adhering to the dura but not adherent to the arachnoid. In certain cases in which the onset of symptoms is delayed for only a few days after trauma, it is possible that they may be due to a hematoma formed immediately but which only announces its presence when the brain becomes edematous or congested. In other cases the occurrence of late hemorrhages seems probable and may be due to the formation of communication between the mesothelium lined spaces and blood vessels, with rupture of one or the other. When the presence of a subdural hematoma is under suspicion, the exploratory craniodural puncture over the hemisphere will give the most reliable evidence of the presence or otherwise of the clot. If the diagnosis is verified, an osteoplastic resection with reflection of the dura and removal of the more or less organized clot as intact as possible is the procedure of choice, with subsequent painstaking hemostasis. The removal of the dura on the basis that it is a possible source of further hemorrhage is unnecessary. Experience tends to show that there need be no fear of reformation of the clot but that cerebral edema is apt to occur in the brain released from its long pressure. It consequently may be advisable to combine the osteoplastic exploration with a subtemporal decompression. Should edema occur, the use of hypertonic saline solution or the performance of lumbar puncture should, perhaps, be resorted to before reinvestigation of the wound, for in no case in the present series, at least, has the procedure been of use.

Localization of Lung Abscess.—By the employment of the Hirtz compass for localization in three cases of lung abscess, Sante and Lehman have been enabled on the operating table to enter the cavity of the abscess with the exploring needle at the first attempt.

Sequelae of Rectal Implantation of Ureters for Exstrophy.—Fourteen years ago the Bergenhem operation was performed on a boy, aged 3 years. Nothing of a serious nature happened until twelve years later, when the boy presented himself with a left-sided pyonephrosis and perinephric abscess, which was drained. In May, 1922, almost fourteen years after the rectal implantation of the ureters, he returned again with a similar lesion on the right side. This, too, was drained. The patient died four days later. Richey reports the necropsy findings. That the ascending type of renal infection is an entity would seem to be clearly indicated in this case, in which the sequence of pathologic changes evidently was ureteritis, pyelitis, pyelonephritis, pyonephrosis and perinephric abscess, with and without calculus formation. However, inasmuch as there was plenty of damage in all coats of the ureteral wall and the renal pelvis, and a marked inflammatory involvement of the perivascular lymphatics in these structures, Richey is at a loss to ascribe the pathway of infection to a single anatomic structure.

Congenital Abnormalities of Intestine.—Farr and Brunkow discuss intestinal aplasia and atresia of the rectum and anus complicated by rectovesical fistula, and report one case of each.

Fracture of Skull.—Rand and Nielsen present the results of an analysis of 171 proved cases of fracture of the skull with a mortality of 25.7 per cent. Thirty-eight patients (22.2 per cent.) were operated on, with an operative mortality of 47.7 per cent. Sixty-eight per cent. of the deaths occurred within forty-eight hours after injury. All the deaths after the fifth day were due to complications, viz., septicemia, brain abscess or meningitis, with exceptionally a subdural hemorrhage of many months' standing. In one case of proved meningitis (*Bacillus mucosus-capsulatus* of Friedländer), the patient recovered after four intravenous injections of 30 c.c. of 1 per cent. solution of mercurochrome-220 soluble and repeated lumbar punctures.

Boston Medical and Surgical Journal

193: 447-486 (Sept. 3) 1925

Major Urologic Operations Under Regional Anesthesia. O. S. Lowsley, Boston.—p. 447.
Prolapse of Uterus. J. M. Birnie, Springfield, Mass.—p. 453.
Sanatorium Treatment of Juvenile Tuberculosis. C. B. Gibson, Meriden, Conn.—p. 457.
Occurrence of Smallpox in United States and Measures Taken by Federal Government for Its Control. W. F. Draper.—p. 466.
Importance of Early Treatment in Pulmonary Tuberculosis. M. H. Joress, Rutland, Mass.—p. 470.
Intermittent Ventricular Fibrillation with Complete Recovery: Case. S. F. Haines and F. A. Willius, Rochester, Minn.—p. 473.

193: 487-534 (Sept. 10) 1925

*Use of Iodin in Goiter. F. H. Lahey, Boston.—p. 487.
Observations on One Thousand Appendectomies. M. T. Field, Salem.—p. 490.
End Results of Compressed Fracture of Spine. M. H. Rogers.—p. 494.
Administration of Dochez' Scarlatinal Antitoxin. C. L. Thenebe, Hartford, Conn.—p. 497.
VIII. 'Convalescent Work in U. S. Army. J. Bryant, Boston.—p. 499. Cont'd.
*Gas Bacillus Infection with Perforated Gastric Ulcer. N. A. Dayton, Wrentham.—p. 507.
Progress in Pulmonary Tuberculosis. J. B. Dawes, 2nd, Boston.—p. 508.

Use of Iodin in Goiter.—Since the employment of compound solution of potassium iodid, Lahey has observed a higher percentage of myxedema following subtotal thyroidectomy than was the case before its use, a situation which he believes is entirely explained by the fact that the type of thyroid tissue remaining after thyroidectomy in patients who have had this treatment is much less active than that left in patients who have not had it. The section coming from the same amount of remaining tissue in these two types is quite different, and with these facts in mind it is necessary to leave behind somewhat more of the iodin converted tissue in the hyperplastic goiter than was the custom previous to its employment to insure an adequate supply of thyroid secretion. Lahey deprecates the widespread use of iodin in these cases without adequate knowledge of its action. Iodin is useful in two pathologic thyroid states—one, in regions where goiter is endemic, and the iodin content of the drinking water is low, as a prophylactic measure against the development of goiter in children; and two as a measure to prepare toxic thyroid patients for operation.

Gas Bacillus Infection with Perforated Gastric Ulcer.—Dayton relates the case of a male, aged 18, an imbecile who contracted a gas bacillus infection by way of a gastric ulcer. Death occurred five hours after the patient first complained of not feeling well. Puffiness of the neck first was noted twenty-five minutes before death. This condition spread rapidly, and the skin became tense and drumlike as the tissues were ballooned out. Synchronously, the superficial structures of the abdomen began to puff. The dirty gray color of the skin gave away to a light brownish tinge. The patient took a sudden deep inspiration and died. Rapid involvement of the entire body then took place, tremendous gaseous distension of the skin of the face, scalp, arms, chest, penis, scrotum and thighs occurring within an hour. The necropsy disclosed a ruptured gastric ulcer with escape of contents of stomach to the peritoneal cavity; infection of blood stream with *Bacillus aerogenes-capsulatus.*

Colorado Medicine, Denver

22: 301-330 (Sept.) 1925

Colorado Foundation for Research in Tuberculosis. G. B. Webb, Colorado Springs.—p. 307.
Cutaneous Myiasis; Case. T. R. Knowles, Colorado Springs.—p. 309.
Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. H. C. Goodson, Colorado Springs.—p. 315.
Sanocrysin Treatment of Tuberculosis. J. A. Sevier, Colorado Springs.—p. 318.
Gangrene Due to Calcium Chlorid. W. A. Campbell, Jr, Colorado Springs.—p. 321.
Abdominal Surgery in Phthisical Patient. J. B. Hartwell, Colorado Springs.—p. 324.
Ethylene Anesthesia. L. R. Allen, Colorado Springs.—p. 327.

Iowa State Medical Society Journal, Des Moines

15: 473-518 (Sept. 10) 1925

*Low Back Pain; Anatomic and Clinical Study. A. Steindler, Iowa City.—p. 473.
Chronic Arthritis. L. W. Ely, San Francisco.—p. 479.
Convalescent Serum in Prophylaxis of Measles. G. H. Weaver and T. T. Crooks, Chicago.—p. 483.
Physicians and Public Health. T. Paran, Jr., Springfield, Ill.—p. 485.
Communicable Disease Prevention. D. M. Griswold, Iowa City.—p. 487.
*Use of Acriviolet in Treatment of Infection of Ear. G. J. Pearson, Burlington.—p. 489.
Nonoperative Treatment of Sinusitis. F. W. Bailey, Cedar Rapids.—p. 492.
Internal Injuries. B. R. Weston, Mason City.—p. 494.
Urinary Tract Infections. A. J. Farnham, Traer.—p. 497.
Cherokee Hospital for Insane. G. H. Hill, Des Moines.—p. 500.
Psychopathic Hospital, Iowa City. G. H. Hill, Des Moines.—p. 501.

Low Back Pain.—From his analysis of 200 cases, and from anatomic investigations preceding the cases analyzed, Steindler believes that sacro-iliac as well as sacrolumbar sprains are distinct clinical entities of injuries to the ligamentous apparatus of these regions and their neighborhood, subject to the same laws that obtain in other ligamentous sprains in the body. The anatomic relationship of this ligamentous apparatus to certain structures of the pelvis especially the nerve plexuses and the neighboring bones, makes for a certain regularity of symptoms which aid very considerably in the exact diagnosis. Among these are first, more or less typical postures, especially lateral tilts and lumbar lordosis; then certain typical radiation of pain in the lumbar plexus on one, and the sciatic and the sympathetic plexus on the other hand, producing nervous symptoms, some of which are known as Bertolotti's syndrome. The great percentage of symmetrical positions, on one hand, and of the absence of nervous complications on the other hand, show that neither position nor radiation is necessarily pathognomonic for sacro-iliac or sacrolumbar strain, while the type of radiation and the type of faulty position, if present, are of a definite diagnostic importance. Lastly, anatomic variations do not always, nor even in the majority of cases, form the background of the sacro-iliac or sacrolumbar sprains. On the other hand, however, backs endowed with certain anatomic variations show percentage rates which lead to the conclusion that such backs are inherently weak by virtue of the natural restrictions of the normal motion, and that their possessors are especially susceptible to ligamentous sprains in the sacro-iliac and sacrolumbar evaluation of the function of the back from the point of view of industrial surgery.

Acriviolet Treatment of Ear Infection.—Pearson does not regard acriviolet as a panacea which will supplant proper drainage or removal of diseased tissue. Nor will it make it possible always to get a perfect result with or without operative work. He is using it in all cases of chronic otorrhea which do not demand immediate operation, but has not used it long enough to feel sure that the cases that have dried up are going to stay dry. It has faciliated clearing up an infective process more than any other solution used in cases in which there is good drainage, and no large area of necrotic tissue, that is where it has access to the infection. Acriviolet is nontoxic, absolutely nonirritating and not inhibiting the phagocytic action of the leukocytes nor retarding the healing process unless a large amount of granulation tissue is to be thrown out.

Journal of Clinical Investigation, Baltimore

1: *497-606 (Aug.) 1925*

- *Mechanism of Death from Quinidin; Method of Resuscitation. B. Gordon, M. Matton and S. A. Levine, Boston.—p. 497.
- *Serologic Reactions Associated with Experimental Plethora and Plethoric Anemia. L. A. Julianelle and C. A. Pons, Philadelphia.—p. 519.
- Effects of Pyloric Obstruction in Rabbits. J. L. Gamble and M. A. McIver, Boston.—p. 531.
- Effects of Changes in Hydrogen Ion Concentration on Blood Flow of Morphinized Dogs. T. R. Harrison, C. P. Wilson and A. Blalock, Baltimore.—p. 547.

Mechanism of Death from Quinidin.—As a result of experiments on cats, Gordon, Matton and Levine found that the minimal lethal dose of quinidin bisulphate was dependent on the speed of administration. Whereas 25 mg. per kilogram was usually fatal when given in a single dose, on the other hand, when smaller doses were given at intervals of from six to twelve or twenty-four minutes, the total minimal lethal dose correspondingly increased to about 0.1 gm. per kilogram. Immediately following injections of nonlethal doses of quinidin, there was a striking fall in blood pressure. This began a few seconds after the administration was started. The effect on the respiration was directly proportional to the size of the dose. In giving a small dose the breathing was essentially unaffected, whereas after a moderate dose, there was usually a temporary, very brief cessation of the respirations. With increasing sublethal doses there was a slowing of the rate and a decrease in the depth of the respirations. With lethal doses the breathing gradually failed and finally ceased. The heart always continued to beat after complete respiratory failure, for even as long as two minutes. The appearance of the animals under quinidin intoxication was not unlike that manifested by a fatal case in the clinic. It was found that when animals were given lethal doses and the respirations had ceased for a period of one to two minutes, they could be revived satisfactorily by artificial respiration combined with the use of caffein sodium benzoate. The caffein alone was frequently sufficient, although artificial respiration alone was much more effective. When the two procedures were combined recovery took place more rapidly. Roentgenograms taken at frequent intervals during the fall of pressure after an injection of a moderately large dose of quinidin showed at first a slight contraction of the heart followed by a dilatation. With small doses a contraction but no dilatation occurred. There was a marked dilatation as a terminal event. It is suggested that the method of resuscitation employed in reviving the animals in these experiments may be applicable in the clinic in the treatment of quinidin intoxications.

Blood Destruction in Experimental Plethora.—Various hypotheses to explain the blood destruction following experimental plethora were tested by Julianelle and Pons by a number of methods. No evidence was obtained that the blood destruction is the result of the development of isohemolysins. No evidence was obtained to show that this result is due to greater activity of hemophages. The explanation of postplethoric anemia must await further work.

Journal of Industrial Hygiene, Baltimore

7: 345-384 (Aug.) 1925

- Dust Hazard in Abrasive Industry. W. I. Clark and E. B. Simmons, Worchester, Mass.—p. 345.
- Improved Form of Drinker, Thomson, Fitchet Dust Sampler. P. Drinker and R. M. Thomson, Boston.—p. 352.
- Recovery of Small Amounts of Zinc from Biologic Material Ashed by the Incineration Process. P. K. Thompson, Boston.—p. 359.
- Necrosis of Jaw in Workers Employed in Applying Luminous Paint Containing Radium. W. B. Castle, K. R. Drinker and C. K. Drinker, Boston.—p. 371.

7: 385-432 (Sept.) 1925

- Method for Sampling Dust in Alveolar Air. R. M. Thomson, Boston.—p. 385.
- Study of Back Strains. E. B. Simmons and W. I. Clark, Worcester, Mass.—p. 391.
- Researches in Mental Hygiene in Industry: Part V. Personnel Science and Administration from Standpoint of a Hygienist. H. B. Elkind, Boston.—p. 396.
- Statistics, Definition and Clinical Aspects of Occupational and Industrial Dermatitides. M. Oppenheim, Vienna.—p. 407.

Journal of Radiology, Omaha

6: 257-302 (July) 1925

- Radiation Methods in Treatment of Malignancies. J. R. Ranson, Denver.—p. 257.
- Zinc and Mercury Ions in Surgical Tuberculosis. G. B. Massey, Philadelphia.—p. 263.
- Maximum and Minimum Effects of Autocondensation in High Arterial Tension. B. B. Grover, Colorado Springs, Colo.—p. 266.
- Physiotherapy and High Blood Pressure. M. J. Breuer, Lincoln, Neb.—p. 271.
- Roentgen-Ray Treatment of Hypertrophied and Infected Tonsils. W. L. Ross, Omaha.—p. 273.
- Schlatter's Disease: a Case. M. Emmert, Omaha.—p. 278.

Journal of Urology, Baltimore

14: *71-197 (Aug.) 1925*

- *Congenital Valvular Obstruction of Posterior Urethra. F. Hinman and A. A. Kutzmann, San Francisco.—p. 71.
- *Removal of Stone from Lower Ureter by Vaginal Route. W. E. Lower, Cleveland.—p. 113.
- *Hexyl Resorcinol in Treatment of Infections of Urinary Tract. R. B. Henline, New York.—p. 119.
- *Preoperative Skin Disinfectant — Alcohol-Acetone-Aqueous Solution of Mercurochrome. W. W. Scott and J. H. Hill, Baltimore.—p. 135.
- Complete and Repeated Extroversion of Bladder Through the Urethra, Associated with Double Right Kidney and Ureter. R. C. Bryan.—p. 153.
- Review of Recent Progress in Urology. W. F. Braasch, Rochester, Minn.—p. 183.
- Complete Bilateral Duplication of Ureters and Renal Pelvis. D. Geiringer and J. Campuzano, New York.—p. 193.

Congenital Valvular Obstruction of Urethra.—Hinman and Kutzmann report six cases in which the diagnosis was made during life by means of the cystoscope. Four cases occurred under the age of 10 years (2, 4 and 6½ years), while the remaining two patients were 18 and 57 years, respectively. The initial symptom in all cases was urinary disturbance, particularly difficulty, and the acuteness and severity of the onset seemed dependent on the degree of infection present. In only one case did the symptoms date back to birth while the shortest duration of symptoms was two weeks. The longest complaint covers ten years. In this case, and one other, the urinary obstruction had sufficiently injured the kidneys to produce uremia, of which one patient died. The urographic studies were usually quite characteristic. A small hypertrophied bladder with hydronephrosis and hydro-ureter, either unilateral or bilateral, as demonstrated by simple cystography, in young boys is almost pathognomonic.

Removal of Ureteral Stone Through Vagina.—Lower advocates the vaginal route for the removal of stones from the lower portion of the ureter for the following reasons: (1) It is a comparatively simple method of removing a stone from a location which is often by other methods very difficult. (2) It affords dependent drainage, should there be leakage. (3) It avoids an external incision. (4) It shortens the period of convalescence.

Hexylresorcinol in Urinary Infections.— Experience with hexylresorcinol in fifty cases has convinced Henline that it is an effective internal urinary antiseptic administrable by mouth, nontoxic, nonirritating to the urinary tract, and a valuable aid in the treatment of urinary tract infections. It is apparently superior to all other urinary antiseptics. Hexylresorcinol, by thorough disinfection of the urinary tract, is an aid in preventing recurrent stones. In postoperative urologic cases, hexylresorcinol is an aid in healing wounds in streptococcus infections.

Mercurochrome as Skin Disinfectant.—The alcohol-acetone-aqueous solution of mercurochrome-220 soluble, made by dissolving 2 gm. mercurochrome in 35 c.c. of distilled water and then adding 55 c.c. of 95 per cent. alcohol and 10 c.c. of acetone, is recommended by Scott and Hill as a very efficient preoperative skin disinfectant. Better skin sterilization is obtained with it than with iodin, potassium mercuric iodid and picric acid. Its application is accompanied by no pain and is, therefore, of special value in operations done under local anesthesia. Regardless of the age of the patient or location of the operative field, no instances of dermatitis have occurred following its use. The solution penetrates more deeply than iodin and potassium mercuric iodid. It penetrates at least as deeply as picric acid and seems to be a little more uniformly distributed at its lower level of penetration. It retains its high bactericidal properties at least forty-six days. It has a relatively low toxicity. The color of the preparation is such that there can be no doubt as to the extent and thorough preparation of the operative field. It should not be objectionable on account of its stain because the solution completely dries on skin in less than two minutes. Any stains accidently obtained are readily removed by surgical solution of chlorinated soda.

Medical Journal and Record, New York

122: 245-308 (Sept. 2) 1925

Causes of Aging. M. W. Thewlis, New York.—p. 245.
How Soon Should Nasal Deformities, Due to Abscess of Septum, Be Corrected by Transplantation of Bone? W. W. Carter, New York.—p. 247.
Postoperative Parotitis. E. Novak and L. A. Antupit, Baltimore. p. 249.
*Priapism. G. Wilson and J. P. Maus, Philadelphia.—p. 251.
Tonsillectomy in Rural Practice. L. A. Hulbert, Springville, N. Y.—p. 252.
Reconstruction of Ankylosed Joints. W. C. Campbell, Memphis, Tenn.—p. 255.
Mastoid Operation; Results in One Hundred Cases. J. Friedman and S. Greenfield, Brooklyn.—p. 261.
Fifty Years of Surgery—1875-1925. J. B. Deaver, Philadelphia.—p. 264.
Experiments on Man Demonstrating Dynamogenic Power of Liquid Extract of Animal Testicles. M. B. Séquard.—p. 267.
Aniline Dyes in Gastro-Intestinal Disorders. G. R. Satterlee, New York.—p. 267.
Gastro-Intestinal Manifestations of Food Allergy. A. F. R. Andreson, Brooklyn.—p. 271.
Test for Pancreatic Efficiency of Clinical Assistance; Cases. A. Brassler and J. R. Lutz, New York.—p. 275.
Cholecystoduodenostomy by Nature. E. A. Herr, Waterbury, Conn.—p. 279.
Lesions of Gallbladder. J. B. Haeberlin, Chicago.—p. 280.
Roentgen-Ray Study of Gastro-Enteric Tract Not Infallible; Case. M. Golob, New York.—p. 284.

Priapism of Long Duration.—Wilson and Maus report a case of priapism of forty-five days' duration, which was due to a lesion of the conus. On the thirty-first day of the priapism, the man was given spinal anesthesia which was successful as far as the anesthesia was concerned but it had no effect on the erection. On the thirty-fifth day the man was etherized and this produced no effect on the priapism. An incision was then made through the skin at the right lateral margin near the base of the penis and was continued through the corpus cavernosum, septum and into the left corpus. A considerable amount of dark blood and several small clots were evacuated. This had no effect on the state of the penis. Two days later, under ether, a second incision was made at the left lateral margin opposite that made previously and rubber tissue drainage was inserted through the wounds. Five days after the second operation, the penis was semiflaccid distal to the incision but was spastic proximally. The erection slowly subsided so that at the end of forty-five days it approached the normal, although it was not entirely flaccid. One year later the penis was flaccid and sexual desire and power had not returned.

Michigan State Medical Society Journal, Grand Rapids

24: 469-512 (Sept.) 1925

Ultraviolet Ray Treatment in Sacro-Iliac Disease. M. N. Frank, Detroit.—p. 469.
Plastic Surgery of Deep Urethra. R. E. Cumming, Detroit.—p. 471.
Lesions of Kidneys Presenting Vague or Misleading Abdominal Symptoms. W. F. Martin and W. N. Chynoweth, Battle Creek.—p. 473.
Premature and Still Births. J. E. Watson, Detroit.—p. 477.
Will Sterilization Decrease Epilepsy? N. R. Smith, Ann Arbor, Mich.—p. 478.
"Those Good Old Times" as Seen by Physician. III. J. G. R. Manwaring, Flint.—p. 480.

Missouri State Medical Association Journal, St. Louis

22: 345-386 (Sept.) 1925

Acute Surgical Conditions of Gastric Origin. A. E. Hertzler, Kansas City.—p. 345.
Acute Surgical Conditions of Upper Abdomen of Pancreatic Origin. E. L. Miller, Kansas City.
Surgery of Acute Diseases of Hepatic Origin. R. D. Irland, Kansas City.—p. 351.
Intrathoracic Lesions Simulating Abdominal Conditions. J. Q. Chambers, Kansas City.—p. 353.
Incidental Factors in Diagnosis and Treatment of Gastric Ulcer. J. I. Tyree, Joplin.—p. 356.
Cisterna Puncture in Intracranial Hemorrhage of Newborn. J. M. Brady, St. Louis.—p. 359.
Technic of Abdominal Section for Appendicitis Which Has Abscessed. W. F. Grinstead, Cairo, Ill.—p. 361.

New Orleans Medical and Surgical Journal

78: 117-190 (Sept.) 1925

*Appendicitis in the Aged. U. Maes, New Orleans.—p. 117.
Intranasal Surgery; Relation to Turbinates. E. H. Jones, Vicksburg, Miss.—p. 122.
Hypertrophic Pyloric Stenosis in Infants. J. C. Willis, Shreveport,—p. 125.
Postoperative Parotitis. R. O. Simmons and P. K. Rand, Alexandria.—p. 129.
Hay-Fever from Tree Pollens. W. Scheppegrell, New Orleans.—p. 132.
Mastoidectomy: Local Anesthesia. S. M. Blackshear, New Orleans.—p. 137.
Diseases of Gallbladder. L. Abramson, Shreveport.—p. 138.
Incidence and Causes of Heart Diseases. A. B. Harvey, Tylertown, Miss.—p. 143.
Appendicitis in Latter Weeks of Pregnancy; Case. E. A. Ficklen, New Orleans.—p. 146.
Radical Frontal Sinus Operation. L. S. Gaudet, Natchez, Miss.—p. 152.
Zinc Ionization Treatment of Chronic Purulent Otitis Media. C. E. Granberry, New Orleans.—p. 157.
Treatment of Cancer. C. A. Allen, New Orleans.—p. 160.

Appendicitis in Aged.—Maes states that appendicular disease is relatively infrequent in patients over 50 years of age but is accompanied by a very high mortality. After the thirtieth year the histology of the appendix, as of the tonsil, changes, and to this change may be attributed the early thrombophlebitis and the massive gangrene so frequently found at operation or at necropsy. The objective symptoms give no hint of the gravity of the intra-abdominal pathology, and the naturally lowered resistance of elderly persons, plus organic disease of the heart or kidneys, makes the prognosis always a serious one. Ileus, pyemia and septicemia are frequent complications. Early diagnosis and prompt treatment, in which free drainage is of prime importance, furnish the only possible means of reducing the mortality. Since patients who develop fecal fistulas usually recover, and since a late enterostomy usually does little good, it is suggested that a Pezzer catheter or a Paul tube be left in the cecum at the time of operation.

Northwest Medicine, Seattle

24: 357-408 (Aug.) 1925

Reason for Our Existence. A. Monro, Vancouver, B. C.—p. 358.
General Practitioner and Family Physician. G. McGrath, Hamilton, Mont.—p. 358.
Angina Pectoris. J. B. Herrick, Chicago.—p. 360.
Effect of Insulin. R. Fitz, Boston.—p. 368.
Surgery of Galltracts. R. C. Coffey, Portland, Ore.—p. 378.
Cholecystectomy; Findings in 200 Cases. G. W. Millet, Portland, Ore.—p. 383.
Acute Osteomyelitis and Its Relation to General Practitioner. R. T. Congdon, Wenatchee, Wash.—p. 385.
Barnacles. J. C. Elliot King, Portland, Ore.—p. 389.

Ohio State Medical Journal, Columbus

21: 633-693 (Sept. 1) 1925

Arterial Hypertension. J. Phillips, Cleveland.—p. 637.
Bone Tumors. R. B. Cofield, Cincinnati.—p. 640.
Parkinsonian Syndrome Following Epidemic Encephalitis. F. C. Wagenhals, Columbus.—p. 645.
Hyperglycemia in Relation to Ocular Disturbances. H. W. Reid, Cincinnati.—p. 648.
Postpartum Hemorrhage: Dysfunction of Uterus; Injuries to Birth Canal; Dysfunction of Ovaries. J. Gardiner, Toledo.—p. 651.
Smallpox Epidemic in Hamilton County. C. A. Neal, Norwood.—p. 653.
Transillumination of Cystic Duct in Cholecystectomy. M. P. Jones, Youngstown.—p. 655.

Philippine Islands Medical Association Journal, Manila

5: 181-210 (July) 1925

Elementary Knowledge and Training Required to Make Prognosis. A. G. Sison.—p. 181.
*Tumors Among Filipinos. I. M. P. Mendoza-Guazon.—p. 184.
Rare Case of Cellular Type of Glioma of Brain. J. Z. Sta. Cruz.—p. 187.
Natural Enterostomy; Case. J. Eduque.—p. 191.

Tumors Among Filipinos.—Mendoza-Guazon corroborates the statement that tumors are infrequent in the tropics. In the study of the anatomico-pathologic lesions in 1,000 Filipino children under 5 years of age, he found six cases of tumor—two of glioma of the eye; one of fibroma of the capsule of the liver; one of adenoma of the intestine; one of neuroblastoma of the suprarenal; and another of adenoma of the intestine and edematous myoma of the heart. He has encountered only one case of melanosarcoma, with metastasis in the brain, lungs, kidneys, liver, suprarenals, stomach and intestines, in a Filipino.

Philippine Journal of Science, Manila

27: 291-452 (July) 1925

New Philippine Sea Robin, Family Peristediidae. A. C. T. Herre.—p. 291.
Chlorination of Manila Water Supply. E. Taylor.—p. 297.
Fallacy of Test for Lactose Fermenters as Indicator of Fecal Pollution of Waters. O. Schobl and J. Ramirez.—p. 317.
Effects of Castration on Immature Guinea Pigs. M. D. Sumulong.—p. 325.
Echinococcus Cyst of Human Lung. W. de Leon and L. Leiva.—p. 351.
Diptera of Medical and Veterinary Importance. II. More Important Blowflies, Calliphorine. W. S. Patton.—p. 397.
Third Report on Diptera Pupipara from the Philippine Islands. G. F. Ferris.—p. 413.

Public Health Journal, Toronto

16: 351-400 (Aug.) 1925

Canadian Cancer Problems and Cancer Research. F. L. Hoffman.—p. 351.
Every Doctor a Health Officer. G. E. Vincent.—p. 361.
Progress in Public Health. J. W. S. McCullough.—p. 367.
Organization and Operation of Child Guidance Clinics. V. V. Anderson.—p. 371.
Relation Between Maternal Mortality and Infant Mortality. H. MacMurchy.—p. 379.

South Carolina Medical Association Journal, Greenville

21: 185-204 (Aug.) 1925

Trends in Public Health Work. H. S. Mustard, Murfreesboro, Tenn.—p. 187.
Cancer from Standpoint of General Practitioner. R. Wilson, Charleston.—p. 190.

Surgery, Gynecology and Obstetrics, Chicago

41: 255-398 (Sept.) 1925

*Endoscopy of Abdomen; Abdominoscopy. O. E. Nadeau and O. F. Kampmeier, Chicago.—p. 269.
Diabetes in Surgical Patients; Insulin. L. Bauman, New York.—p. 272.
Effect of Duodenobiliary Drainage on Visualized Gallbladder. D. N. Silverman and L. J. Menville, New Orleans.—p. 284.
Fractures of Lower End of Radius. R. M. Carter, Green Bay, Wis.—p. 287.
*Renal Neoplasms. A. Hyman, New York.—p. 298.
*Noncarcinomatous Tumors of Stomach. K. A. Meyer and W. A. Brams, Chicago.—p. 311.
*Congenital Salivary Fistula of Neck. R. R. Smith and W. R. Torgerson, Grand Rapids, Mich.—p. 318.
Syphilis in Relation to Pregnancy. J. N. Nathanson, Ottawa, Ontario.—p. 320.
*Rupture of Spleen. T. S. Jackson, Cleveland.—p. 331.
*Degeneration of Fibromyomata of Uterus. L. Seed, Rochester, Minn.—p. 333.
Cancer of Breast. B. B. Davis, Omaha.—p. 342.
Treatment Employed in One Hundred and Twenty-Five Consecutive Cases of Head Injuries. J. C. Weaver, Atlanta, Ga.—p. 347.
Abdominal Hysterectomy for Hydatidiform Mole. A. Turenne, Montevideo, Uruguay.—p. 353.
Reconstruction (McGowan) of Large Defect in Posterior Urethra: Case. E. P. Quain, Bismarck, N. D.—p. 355.
Permanent Occlusion of Intractable Vesicovaginal Fistula by Trachelo-plastic Flap. Omission of Indwelling Catheter. A. Sturmdorf, New York.—p. 358.
Conical Resection of Uterus with Abdominal Fixation. J. N. Jackson, Kansas City, Mo.—p. 362.
Dislocation of Shoulder of Sixteen Years' Standing Reduced by Subperiosteal Operation. R. Meisenback, Buffalo.—p. 265.
Control of Accidental Hemorrhage from Cystic Artery. D. Parham, Titusville, Pa.—p. 367.

Abdominoscopy.—Abdominoscopy represents the endoscopic method of examining the abdominal cavity, a method which is not utilized as much as it deserves. Such endoscopy, if carefully executed, is a relatively simple and safe procedure. Originally devised and applied by Kelling, about twenty-five years ago, the method in its technical details has been but slightly modified by subsequent work. At least twenty-five investigators or observers have published work concerning it. The technic as described consists in producing a preliminary pneumoperitoneum, passing a trocar through the locally anesthetized abdominal wall, and on its withdrawal leaving in place a flexible and air-tight sheath. This cannula then permits the introduction of any type of cystoscope preferred by the observer—an instrument either straight or curved, and adapted for either direct or indirect vision. With the cystoscope, an excellent view may be obtained of the interior of the abdomen, particularly in the region of the stomach, liver and bile tracts, and in the pelvic region. The kinds of operative or therapeutic measures performed with the guidance of the cystoscope in the urinary bladder may also be carried out in the abdomen. In some cases peritoneal adhesions form the chief drawback to the employment of abdominoscopy. The diagnostician using the method must be familiar with cystoscopy, and with the normal and pathologic topography of the abdomen. Nadeau and Kampmeier are convinced of the great practical possibilities inherent in this method, and recommend its wider use in clinical as well as in experimental work.

Kidney Tumors.—Hyman analyzes seventy kidney tumors. Hypernephroma occurred forty-four times; mixed tumors ten times; carcinoma twelve times. Hematuria and pain were the most prominent symptoms. Of sixty adult patients, hematuria was noted first in twenty-one instances. Pain as an initial symptom was present eighteen times, and not infrequently antedated the appearance of hematuria by many months, and in a few instances, years. Pain and hematuria appeared simultaneously seven times. Loss of weight was noted in at least 33 per cent. of cases. In five patients, this was the only symptom observed for some time previous to the appearance of any of the classical signs. Cachexia, generally a late manifestation, was present fifteen times; most of these cases had advanced lesions with metastases. Twelve patients, or 20 per cent., already had metastases when first observed. The ultimate mortality ranges between 65 and 75 per cent. and the only way to effect a reduction of this high rate at present, Hyman says, would be to use the cystoscope and make pyelograms, not alone in every case of hematuria, but in every case in which the patient complains of lumbar pain for which no definite cause can be found, and to examine more carefully patients complaining of intractable sciatica and lumbago.

Noncarcinomatous Tumors of Stomach.—A series of noncarcinomatous tumors of the stomach is reported by Meyer and Brams consisting of one myofibroma, two polyps, one adenoma en nappe, one hypertrophic pyloric stenosis in an adult, and mention is made of certain inflammatory conditions, namely, syphilis of the stomach and inflammatory pancreatitis associated with chronic peptic ulcer. Recognition of these tumors and prompt surgical treatment may not only cure the conditions, but may also prevent the occurrence of the serious complications sometimes caused by benign growths of the stomach.

Congenital Salivary Fistula of Neck.—The outstanding features of the case reported by Smith and Torgerson are: (1) The presence of the duct since birth with the absence of infection or swelling. Thyroglossal ducts are usually closed at birth and later swell and rupture. (2) The absence of ciliated columnar epithelium lining the duct. (3) The history of increased flow of its secretion when eating or thinking of food. (4) The finding microscopically of salivary gland tissue. (5) A groove in the mandible. This indicated that the duct must have been present during early fetal life. (6) The presence of cartilage in an unusual location. This would tend to substantiate the teratoid nature of the whole structure.

Rupture of Spleen.—In Jackson's case twenty-eight days elapsed from the time of the initial injury until the appearance of the profound symptoms presented.

Degeneration of Uterine Fibromyoma.—Gross degeneration occurs in approximately 13 per cent. of fibromyomas. Two hundred specimens of grossly degenerated fibromyomas of the uterus were reviewed by Seed and the degeneration classified as follows: hyaline, 24 cases; edematous, cystic, and myxomatous, 80; red degeneration with total necrosis, 33; calcification, 39; infected, subserous and interstitial 3, and submucous, 13; miscellaneous, thrombotic sinus, 5, tuberculous, 1, and fibrolipomatous, 2.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 317-366 (Aug. 22) 1925

Treatment of Fractures; Organization and Teaching. I. G. E. Gask.—p. 317.
Id. Orthopedic Standpoint. R. Jones.—p. 319.
*Treatment of Empyema. I. H. C. Cameron.—p. 331.
*Treatment of Acute Empyema in Children. H. S. Souttar.—p. 333.
Types of Empyema. F. G. Chandler.—p. 336.
*After-Effects of Treatment of Empyema. W. H. C. Romanis.—p. 337.
*Essentials for Successful Treatment of Empyema. T. T. Higgins.—p. 338.
Cellular Changes Due to Irradiation. S. Russ.—p. 340.
Action of Ultraviolet Light on Growth of Rats. M. E. Hume.—p. 341.
Changes in Blood and Blood-Forming Organs as Result of Irradiation. A. Piney.—p. 343.
Foodstuffs Irradiated with Ultraviolet Light: Effect on Bone Lesions of Rachitic Children. H. M. MacKay and H. F. Shaw.—p. 344.
Concurrent Herpes Zoster and Varicella. G. Dudley.—p. 346.
Incubation Period of Varicella. G. C. M'Gonigle.—p. 346.
Suppuration in Hydatid Cyst of Liver. W. Dempster.—p. 346.
Diathermy in Prostatic Enlargement. C. St. A. Farrer.—p. 346.
Strangulated Hernia Containing Ovary and Fallopian Tube in Infant. M. I. Daggett.—p. 346.

Treatment of Empyema.—Cameron states that in the case of young children and in certain influenzal cases it may be wiser to withhold operation until after the termination of the pneumonia but does not contradict the general rule that any delay in operating makes it increasingly likely that the formation of fibrous tissue in the pleura will prevent or make difficult the proper expansion of the lung. Drainage must be adequate and the opening suitably placed. It is probable that secondary infection is not uncommon. Moist antiseptic dressings offer obvious advantages over sterile pads, both in preventing accidental contamination of the wound or of the discharges and in excluding the air from the pneumothorax. A fistulous communication with a bronchus is the usual termination of an empyema if left undrained. This spontaneous escape of pus is seldom rapidly achieved. It is rare to find expectoration of pus from an empyema cavity before the eighth week, and the interval is usually much longer. Irrigation is of service in disinfecting the cavity and in preventing the formation of adhesions with localization of the pus. With sufficiently free outlet and with unirritating solutions it is without ill effect. Accidents formerly described appear to have been due to the use of strong antiseptic solutions or to too great pressure.

Treatment of Acute Empyema in Children.—Empyema of the pleural cavity, Souttar says, is a disease common from the second to the sixth year of life, with a mortality very high at first but diminishing with the age of the patient. There are two principal forms — the pneumococcal, often localized by adhesions, and the streptococcal, complete and nonadherent. The latter has a very high mortality, and it is well to temporize by means of aspiration in the acute stage. The former is less fatal, and responds well at a suitable stage to open operation and closed drainage. But if pneumonia is present no such operation must be undertaken until it has subsided, and it is always well to remember that it is the complications of empyema, and not the condition itself, which are fatal.

Empyema in Children.—Romanis says that it is in children that the three rare special varieties of empyema—the apical, interlobar and bilateral forms—are most commonly seen. The chief interest and importance of the apical form lies in its diagnosis—its treatment is not different from that of the other forms of empyema except that its localization must be remembered and the greatest care taken not to disturb or infect the intact pleural space. The interlobar form is also difficult to diagnose, and with regard to the treatment it must be remembered that the condition is practically a localized abscess in the lung; that there is no question of exploring the pleural space; in fact, this latter structure must studiously be avoided. One of the difficulties in these cases will be to find the pus if it is a small collection; the operation should, therefore, always be commenced by inserting a needle into the collection of pus, and this is left in situ while the chest is opened. There is no need to employ one of the closed methods of drainage when dealing with a localized collection of this kind, and an ordinary open drainage tube may be used. In the case of a bilateral empyema aspiration must be tried first, on both sides if necessary. If this procedure gives no relief, that empyema which appears to be the biggest should be drained, while aspiration is continued at intervals on the other side. Finally, after an interval of some days, a simple drainage may be performed on the second side.

Treatment of Empyema.—Higgins stresses the after-care of these cases as being most important, especially breathing exercises to promote reexpansion of the lung on the affected side, after the first two or three acute days are over. The child is encouraged to breathe deeply or to blow out Woulf's bottles while lying on the side of the healthy lung, or with the chest wall on the healthy side compressed by the nurse's hand, or even strapped.

Indian Medical Record, Calcutta

45: 239-272 (Aug.) 1925

Rat-Bite Spirochete. R. Row.—p. 239.
Common Nose and Throat Ailments of Childhood. K. M. Sinh.—p. 240.
Hazaribagh; A Popular Health Rosort. A. Roy.—p. 246.
Pulmonary Tuberculosis. P. Ganguli.—p. 254.

Journal of Oriental Medicine, Daireu, South Manchuria

3: 65-126 (July) 1925

Fasting Contents of Stomach of Healthy Man. Y. Nakao.—p. 65.
Pleurisy in Childhood. O. Nagahara.—p. 81.
Keratosis Follicularis Vulgaris. S. Hidoka.—p. 82.
Treatment of Septicemia; Germicidal Value of Intravenous Injections of Hexamethylenamin. K. Shimotsuma.—p. 84.
Anthropologic Study of Nasal Bones of Chinese. Liu.—p. 86.
Pharmacologic Action of Urea on Isolated Heart of Frog and on Peripheral Blood Vessels. R. Tsukamoto.—p. 87.
*Gastric Secretion After Meal. Y. Nakao.—p. 88.

Gastric Secretion After Meal.—From the results of his examinations on 115 healthy persons, Nakao says that the fasting stomach in the early morning is not entirely empty. The quantity of the fasting contents is 41.87 c.c. on an average, mostly between 20 and 50 c.c. The reaction was acid. The average peptic activity is 2.30 mm. In seven cases out of ninety-one no trace of pepsin was found. In 60.9 per cent. of cases examined the stomach contents were colored more or less by the admixture of bile. Mucus was found occasionally, though in a small quantity. Food fragments were found microscopically. The peptic activity of the fasting contents is stronger than that of the gastric juice withdrawn after a test meal.

Journal of Tropical Medicine and Hygiene, London

28: 297-312 (Aug. 15) 1925

*Blood and Tissue Changes in Cancer. J. A. Shaw-MacKenzie.—p. 297.
Granuloma Venereum. A. Viswalingam.—p. 302.
Massage by Chinese Methods, Ancient and Modern. J. Cantlie.—p. 305.

Blood and Tissue Changes in Cancer.—By means of serum reactions or blood tests, Shaw-MacKenzie has been able, without any clinical knowledge of a case, to differentiate cancer from noncancerous lesions in the majority of cases and, what is hardly less important, in obscure cases and after operation to exclude the presence of cancer. Up to the present, in a total of 261 serums examined (including cancerous, noncancerous and normal), the method has proved correct in 248, or 95.3 per cent. The errors have been associated chiefly with tuberculous, sarcomatous and febrile conditions. In one case (obscure abdominal) the reaction was "negative," but two months later, on postmortem and microscopic evidence, a primary carcinoma of the liver was found. So far, twelve cases of cancer of the stomach have been successfully differentiated from five cases of gastric ulcer, the diagnosis having been verified later. In one case, among others, the serum reactions were found to be quite normal in a patient nine years after removal of her breast for scirrhus. On the other hand, it has been possible to decide as to the latency of the disease after operation. In two cases Shaw-MacKenzie found the "positive" reaction present twelve and eighteen months, respectively, after previous removal of the breast for scirrhus. The patients looked well and were apparently in good health, but within three months of that finding metastasis was only too evident in each case. In another case the reaction was present previous to a small local recurrence after operation for squamous epithelioma of the skin, some twelve months before. These cases show that as long as the reaction persists, the patient cannot be considered free of the disease. It is not claimed that the reaction is specific. There is 5 per cent. margin of error, but the practical utility of the reaction is not greatly affected and is evident in 95 per cent. proving correct.

Lancet, London

2: 481-528 (Sept. 5) 1925

Physiologic Basis of Athletic Records. A. V. Hill.—p. 481.
Conservative Treatment of Fractures of Pelvis and Lower Extremity. W. I. de Courcy Wheeler. I, II.—p. 487.
Cataract Extraction in Egypt. A. F. MacCallan.—p. 491.
Induction of Premature Labor. F. Ivens, H. Cantrell and J. K. Reid. —p. 493.
Spectroscopic Examination of Ultraviolet Goggles. B. D. H. Watters. —p. 495.
Case of Spontaneous Pneumothorax; Recovery. F. H. Kelly.—p. 496.
*Case of Chronic Meningitis Lasting Fifteen Years. M. H. Williams. —p. 496.
Fracture Dislocations of Upper End of Humerus. E. W. H. Groves. —p. 513.

Chronic Meningitis Lasting Fifteen Years.—Williams suggests that there are more cases of intractable headache due to chronic germ infection of the meninges than is recognized. She reports one case, that of a woman, aged 55. Horsley diagnosed a meningitis fifteen years ago, but considered it inoperable. The oculist diagnosed "typical migraine," and found bitemporal limitation of fields of vision; fundus normal. These attacks at first occurred every six weeks, but gradually became more frequent. As the years passed, the patient lost strength, and any considerable fatigue brought on an attack. After an attack—not during—there was marked pallor of the face. Insomnia became very troublesome, whole nights being passed without sleep. There were also terrifying dreams. The patient continued to do brain work, and did not consider that this tended to bring on an attack. But it was necessary to work in a warm room (70 F. for choice) and backing the light. Work which required lateral movements of the eyes—e. g., checking a catalog—brought on pain. On waking in the morning, and sometimes during the night, there were jerky movements of arms, hands, legs and feet. When the patient first drank in the morning there was sometimes acute pain at a special point which appeared to be about the cardiac orifice of the stomach, and the patient could not swallow until it passed. After the attacks had continued during some five years it was noticed that before an attack there was frequently slight epistaxis, and during the attack there was constipation. Two unusually severe attacks made it evident that, if operation was not possible, the patient's life would be short. Sufficient bone was therefore removed from the right occipital and parietal regions to allow for access to the cranial contents. Considerable fluid was found outside of the dura mater, with great bulging of the meninges, the dura being under high pressure. The meninges were from three to four times as thick as normal, and this area was removed. The cerebrospinal fluid escaped under high pressure. No sign of tuberculoma was found. The scalp was replaced, leaving a large area without bone. Since the operation the patient is much improved.

Medical Journal of Australia, Sydney

2: 153-182 (Aug. 8) 1925

Condition of Prostate Not Including the Malignant and Venereal. A. S. Roe.—p. 155.
Clinical Conduct of Pregnancy. R. Fowler.—p. 157.
Cases of Filariasis in North Queensland. E. Humphry and R. D. McIntosh.—p. 165.

Quarterly Journal of Medicine, Oxford, London

72: 335-422, 1925

Four Cases of Congenital Dextrocardia; Case with Sino-Auricular Block. L. Abrahamson.—p. 335.
*Acute Ileocolitis in Children. R. Cruickshank.—p. 339.
*Mode of Inheritance of Hereditary Ataxia. W. Russell-Brain.—p. 351.
*Heredity in Polycystic Disease of Kidneys. H. W. B. Cairns.—p. 359.
Cholesterol in Health and Disease. J. M. H. Campbell.—p. 393.

Bacteriology of Acute Ileocolitis in Children.—In a bacteriologic examination made by Cruickshank of the stools of twelve cases of acute ileocolitis, *B. dysenteriae* of Flexner-Y type was isolated in seven cases. In the convalescent stage of the illness, atypical dysentery bacilli were isolated from the feces of four patients, and *B. Morgan* I from the feces of the other four. Since *B. dysenteriae* (Flexner) had previously been isolated from the stools of some of these cases, these types were regarded as concomitant bacilli rather than as the causal organisms. There is no conclusive evidence that organisms other than those of the *B. dysenteriae* group are primary infective agents in producing acute ileocolitis, although they may act as secondary factors in prolonging the diarrhea. *B. dysenteriae*, on the other hand, seems to produce an inflammatory condition of the large intestine and the lower part of the ileum, resulting in a type of diarrhea which is clinically distinguishable from acute infective gastro-enteritis. The treatment suggested for acute ileocolitis in children is magnesium sulphate in repeated small doses every morning, together with antidysentery serum as a routine to combat the toxic symptoms.

Mode of Inheritance of Hereditary Ataxia.—Brain asserts that the mode of inheritance of hereditary ataxia cannot be explained on the assumption that the disease behaves as a single mendelian character, whether dominant or recessive. It can be explained satisfactorily if it be assumed that the disease depends on the presence of two mendelian characters, one of which is a dominant and the other a recessive. The percentage of affected offspring expected on this hypothesis is consistent with that actually found.

Heredity in Polycystic Kidney Disease.—In one family studied by Cairns, eight, and probably ten, cases of polycystic kidney disease have occurred in three successive generations, comprising forty-two individuals. The fourth generation does not yet manifest any symptoms of the disease.

South African Medical Record, Cape Town

23: 325-348 (Aug. 8) 1925

Treatment of Carcinoma of Breast and the Results. H. A. Moffat. —p. 326.
Principles Involved in Operative Treatment of Breast. C. F. M. Saint. —p. 330.
Public Health Aspects of Milk Supply. S. J. Clegg.—p. 332.
Work of Laboratory in Relation to Practice of Medicine. S. Lister. —p. 337.
Cardiac Malformations. B. G. Melle.—p. 341.

Tubercle, London

6: 521-576 (Aug.) 1925

First Interchange of Specialist Medical Officers (Tuberculosis). W. H. Dickinson.—p. 521.
Partial Collapse of Lung by Artificial Pneumothorax in Advanced Pulmonary Tuberculosis. C. H. C. Dalton.—p. 533.

6: 577-624 (Sept.) 1925

*Resistance of Civilized Man to Tuberculosis: Is It Racial or Individual in Origin? L. Cobbett.—p. 577.

Nature of Resistance to Tuberculosis.—Cobbett concludes his review by stating that racial resistance and racial susceptibility are real, and due to hereditary factors deeply fixed in the blood of each race. Superimposed, so to speak, on this high or low resisting power, in every place where the people find themselves brought into contact with tubercle bacilli, there occurs an immunization of the individual. This contact is not without risk, and it is no doubt largely a matter of luck whether the individual meets at first with large doses which produce progressive and fatal tuberculosis, or with small ones which immunize. Doubtless, too, there are doses of bacilli which are safe for a member of one of the more resistant races, such as the Jew, and dangerous to one of the more susceptible, such as a negro; and, on the whole, individual immunization plays a larger part in the case of the more resistant than in that of the more susceptible peoples. But both racial resistance and individual immunization play a part in determining the reaction of the people to tuberculosis, and it would be dangerous to disregard either.

Annales de Médecine, Paris

18: 5-86 (July) 1925

*The Filtrable Viruses. L. Bard.—p. 5.
*Edemas. M. Labbé and P. L. Violle.—p. 22.
Case of Chronic Miliary Tuberculosis. R. Burnand.—p. 46.
Involvement of Lung and Pleura in Recklinghausen's Disease. C. Lestocquoy.—p. 55.
Electrocardiograph Study of Heart Rhythm During the Oculocardiac Reflex. P. Meyer.—p. 72.

Elective Affinity of Viruses for Certain Cells.—Bard comments on the immunity of certain classes of cells to the filtrable viruses; also on the way in which these viruses promote the development and pathogenic action of certain ordinary bacteria, and how these acquire extra virulence by adsorption of the filtrable virus. Some of the filtrable viruses seem to act electively on the body fluids instead of on the cell protoplasm; the fermentations and other changes induced are of a chemical nature, as in the eruptive diseases. He insists that the pathogenesis of all the diseases with specific cellular lesions needs revision. Behind the visible microorganism lurks the filtrable virus which confers the extra virulence on the visible germ. Clinical observation will differentiate the action of the visible germ from that of its borrowed virulence. Both are important in vaccine therapy, and this explains the superiority of autogenous over stock vaccines. It also explains the difference in the efficacy of serotherapy not only in different diseases but with different strains of the germs used in making the serum. In prophylaxis of disease from the filtrable viruses, isolation is the main reliance. The ordinary "passe-partout" prophylactic measures allow the virus to escape, or impose needlessly severe measures.

Edemas.—Labbé and Violle reiterate that edema never has a single cause, but the multiple causes all induce a single phenomenon, the exaggeration of the capacity of the plasma to absorb fluid. Any or all of the multiple causes may be associated, and this must be heeded in treatment. The primordial derangement may be an upset in the osmotic balance, in the acid-base balance, in the balance between the minerals in the blood, or between the fats and colloids in the blood. With edema from circulatory disturbances, there are more than mechanical factors involved. In edema of nervous origin, vasomotor modifications of the capillary circulation are evident; even in Quincke's edema, a vasomotor link connects the anaphylactic toxic phenomena with the edema.

Archives Franco-Belges de Chirurgie, Brussels

28: 273-360 (April) 1925

Surgery of Deformities of the Nose. L. Dufourmentel.—p. 273.
Esthetic Surgery of the Face. Bourguet.—p. 293.
Surgical Treatment of Facial Lupus. Paul Moure.—p. 298.
Spinofacial Anastomosis: Result After Sixteen Years. Lecouturier.—p. 308.
Surgical Correction of Pendulous Breasts. Dartigues.—p. 313.

Archives de Médecine des Enfants, Paris

28: 465-536 (Aug.) 1925

Nontuberculous Affections of Bronchial Glands. L. Guinon and J. Levesque.—p. 465.
*Serotherapy of Meningitis in Infants. T. Mogilnicki.—p. 476.
*Insulin in Acetonemic Vomiting. M. Torello Cendra.—p. 487.
Rheumatism of the Heart. P. Nobécourt and E. Pichon.—p. 493.
Puncture of the Ventricle in Meningitis. J. Comby.—p. 508.

Serotherapy of Cerebrospinal Meningitis in Infants.—Mogilnicki observed within three years eighty-five cases of cerebrospinal meningitis in infants, eleven in children of from 1 to 2 years, and twenty-one in older children. While in the latter the fever is high and continuous, in infants it is lower and irregular. The chief symptoms of the disease in infants are bulging of the fontanel even when the baby is quiet, also hyperexcitability, manifested in excessive sensitiveness of the skin. The diagnosis should be confirmed by lumbar puncture. He used daily intraspinal injections of 10 to 30 c.c. of polyvalent serum (before the causal bacillus could be detected) combined with intramuscular or intravenous injections of 10 c.c. of the serum. From three to six injections induced complete recovery in only a few cases; in most the treatment was prolonged for two or three weeks. In cases with blocking of the cerebrospinal fluid, the serum was injected into the lateral ventricles. Of eighty-five infants thus treated, twenty-nine recovered, ten improved, forty-six died. A complete cure, without sequelae, occurred in 47 per cent. of the child patients treated the first week of the disease, in 17.6 per cent. treated the second week, and in 11.8 per cent. with serotherapy applied still later. Recurrences of the affection were noted in two cases, cured afterward by renewed injections of the antiserum. Vaccine may be added to the serotherapy in certain cases.

Treatment of Acetonemic Vomiting.—Torello Cendra describes two cases of periodic vomiting from acetonemia in children, aged 6 and under 5, treated with insulin. The acetonuria and the vomiting disappeared from fifteen to twenty-five minutes after a subcutaneous injection of insulin. A carbohydrate meal was given after the injection. The average dose for children of from 4 to 6 years was 10 or 15 units. The effect of the insulin lasted for three hours.

Gynécologie et Obstétrique, Paris

12: 1-96 (July) 1925

The Placenta in Relation to the Maternal Organism. G. Schickelé.—p. 1.
*Technic for Vaginal Hysterectomy. A. Chueco.—p. 23.
Ruptured Tubal Pregnancy Simulating Acute Appendicitis. L. Bonnet.—p. 36.
*Tuberculosis of the Adnexa. A. Ricard and H. Comte.—p. 48.
Birth Paralysis of Radial Nerve. E. Petersen.—p. 68.
Insulin Treatment of the Diabetic Pregnant. H. Henneberg and G. Bickel.—p. 72.
Sterility from Obliteration of the Tubes. E. Douay.—p. 80.

Vaginal Hysterectomy.—Chueco gives nine illustrations showing the advantages and technic of his method of ligating the vessels of the broad ligament and suturing the two sheets of the ligament together, and then suturing the peritoneum behind them. He reproduces illustrations of the Canoc-Marquis method to show the superiority of his technic, as the broad ligaments are left in their normal place.

Acute Peritonitis of Adnexa Origin.—The woman had been sent to the hospital with the diagnosis of acute appendicitis, but the appendix was found sound at the laparotomy. The fever continued and typhoid was suspected, but panhysterectomy finally confirmed the diagnosis of tuberculous processes in both adnexa. These peritonitis cases of adnexa origin are distinguished by the good general condition and pulse. The appetite is often retained, the tongue moist and pink. The more or less hard masses palpated in the depths of the general doughiness may be only slightly tender. There is a marked tendency to formation of adhesions, and the tuberculous lesions invade the viscera by way of these bridges. The acute peritonitis does not yield to ice and other medical measures The fever may persist for weeks and the general health declines. The tuberculous lesion in the adnexa may develop with little if any involvement of the peritoneum. Still another form may simulate gonococcal adnexitis by its stormy exacerbation or its connection with the honeymoon or a confinement. In a virgin, tuberculosis should be suspected; in others the uterus is usually more movable than with gonococcal adnexitis, and the culdesac are less tender and doughy. Ricard and Comte summarize nine cases to show the different clinical pictures that may be presented, and they insist that tuberculous adnexitis is much more frequent than realized. In Tixier's service it formed 25 per cent. of the total chronic salpingitis cases in one year. Simple exposure to the air often cures tuberculous peritonitis, and the outlook is very promising when the focus in the adnexa is removed.

Journal d'Urologie Médicale et Chirurgicale, Paris

20: 1-96 (July) 1925

Hematuria in Pyelonephritis. H. Blanc.—p. 1. Cont'd.
The Functioning of a Polycystic Kidney. M. Negro and G. Colombet.—p. 20.
*Ureter Calculus. M. Sacchi.—p. 27.
*Reflex Anuria After Nephrectomy. G. Nicolich.—p. 41.
Case of Tuberculosis of Left Kidney; Double Ureter of Right Kidney. H. Blanc.—p. 47.

A Calculus in the Ureter.—Sacchi remarks that a stone in the ureter may long escape detection although causing constant disturbances. They are liable to be ascribed to everything but the right cause. The calculus may persist in the ureter for years without causing local or general disturbances, or it may be responsible for constant pain. The diagnosis may require radiography, an opaque catheter and pyelography.

Reflex Anuria After Nephrectomy.—Nicolich cured the man by decapsulation of the remaining kidney the third day after the nephrectomy.

Marseille Médical

62: 1149-1236 (July 15) 1925

*Fibrinuria. L. Imbert.—p. 1150.
Bilateral Ureter Catheter in Treatment of Septic Renal Retention. Dor.—p. 1154.
Phenolsulphonephthalein Test in Urinary Surgery. Martin-Laval.—p. 1168.
Microscopic Findings in Pyuria. M. Boivin.—p. 1193.
Relations Between Urethral Stenosis and Prostatic Obstruction. Cezilly.—p. 1195.
The Sympathetic of the Urinary Tract. A. Tristant.—p. 1202.
Danger from Oil Vehicle. C. Lahayville.—p. 1218.

Syndrome of Fibrinuria.—Imbert treated a man suffering for months with painful attacks of pollakiuria. The pain, persisting several hours, disappeared as soon as what looked like the boiled white of an egg was expelled with the urine. After the urine had stood for a few minutes, it coagulated so that the glass could be inverted without a drop running out. The urine was limpid for several hours; then a white retracted clot appeared at the bottom of the glass. The clot was formed of fibrin. The reaction of the urine was never alkaline; the amount of albumin reached 1.2 per cent. on the day of the attacks; it was absent in the intervals. Neither red corpuscles nor parasites were detected in the urine. The patient seemed otherwise normal. The phenomenon was noted also in a syphilitic man, aged 72. Cystoscopic examination in this case revealed white clots in the bladder, testifying to coagulation of the urine. The clots contained fibrin with leukocytes. Evidently fibrinuria is merely a special form of albuminuria, probably connected with some kidney lesion. The differentiation from inflammations with fibrinous exudate is based on the coagulation of the urine in vitro.

Nourrisson, Paris

13: 221-284 (July) 1925

Treatment of Congenital Debility. A. B. Marfan.—p. 221.
Pathogenesis of Stenosis of the Pylorus in Infants. A. Morlet.—p. 245.
Prenatal and Postnatal Congenital Measles. R. Debré et al.—p. 249.

Paris Médical

57: 129-144 (Aug. 8) 1925

No Medical Treatment in Chronic Appendicitis. R. Brunon.—p. 129.
Psychic Origin of Spermatorrhea. Chavigny.—p. 131.
Reactivation of Wassermann Reaction. G. Petges.—p. 135.
Diathermy in Urethritis. Roucayrol and Angulo.—p. 137.
Hypersensitiveness to Stovarsol. Guido Izar.—p. 139.
Peculiar Fracture of the Patella. L. Zagni.—p. 140.
Injury of Fetus from Irradiation of Maternal Fibroma. Foveau de Courmelles.—p. 142.

57: 161-172 (Aug. 22) 1925

Dislocations and Urinary Complications from Saddle Injuries. Maisonnet.—p. 161.
Eosinophilia in Meningitis. Louis Izard.—p. 170.

Presse Médicale, Paris

33: 1137-1152 (Aug. 26) 1925

*Diabetes and Obesity. M. Labbé and R. Boulin.—p. 1137.
*Leukocyte Count in Relapsing Fever. L. Karwacki.—p. 1138.
*Urogenital Tuberculosis. J. Maisonnet and H. Merz.—p. 1140.
Epilepsy in Children. L. Marchand.—p. *1142.*
The "Haff Disease." J. Mouzon.—p. 1144.

Glucose Regulation in the Obese.—Labbé and Boulin reiterate that obesity is always connected with a disturbed glucose regulation, revealed by carbohydrate tolerance tests. In certain obese subjects, ingestion of carbohydrate provokes only a more pronounced and durable hyperglycemia than it does in normal subjects. In others, ingestion of 50 gm. of glucose causes hyperglycemia with glucosuria, a paradiabetic condition. The disturbances of glucose regulation with obesity are usually rapidly cured, contrary to what occurs in veritable diabetes.

Lymphocytosis in Relapsing Fever.—Analysis of the blood in eighty cases of recurrent fever showed Karwacki that lymphocytosis constantly preceded by two or three days the appearance of a febrile relapse. This occurred even when no spirochetes could be discovered in the blood. The examination of the blood should be repeated, since lymphocytosis may reappear in from eight to thirty days. No case of relapsing fever can be considered as cured before that time. In 56 per cent. of the patients, not treated with neoarsphenamin, the leukocyte count was normal by the second week of convalescence; in 44 per cent. by the third week. In 43 per cent. of the treated, the leukocyte count was normal the second week; in 28 per cent. the third week; in 21.5 per cent. the fourth week, and in 7 per cent. the fifth.

Complement Fixation in Genital and Urinary Tuberculosis.—Among fifty-one patients with renal tuberculosis the fixation of complement was positive in 90 per cent. and in 12 per cent. of the cases of kidney disease of nontuberculous nature. Thirty-six cases of tuberculous orchitis and epididymitis, with or without lesions of the bladder and prostate, showed a positive reaction in 68 per cent. In fourteen cases of nontuberculous genital affections, the reaction was always negative. Complement fixation may evidently be of great help in cases with uncertain diagnosis.

Revue de Chirurgie, Paris

63: 405-481, 1925

Masked Peritoneal Reaction to Operations on the Stomach. Delore et al.—p. 405.
*Diagnosis of Gallstone in Common Bile Duct. Leveuf and Berceanu.—p. 422.
Recent Works on Testicle Grafting. H. Godard.—p. 431.
Anastomosis of Gallbladder with Stomach. Villard and Richer.—p. 455.
*Remote Results of Periarterial Sympathectomy. P. Mornard.—p. 467.

Early Differential Diagnosis of Gallstone in Bile Duct.—Leveuf and Berceanu reiterate that, even with roentgenography, the duodenal tube and the usual examination of the blood and urine, calculi in the common bile duct may escape detection till jaundice occurs. They endorse Delbet's method which proved helpful in their cases. As soon as a painful attack appears, suggesting a gallstone in the bile duct, the urine should be examined every two hours. To 10 c.c. of urine, 1 c.c. of 10 per cent. barium chlorid solution is added. This is mixed with 1 c.c. of alcohol (95) and 1 drop of hydrochloric acid; then left in the water-bath for one minute. A green tint indicates the presence of bile pigments. In the twenty-four hours urine the pigments may be so diluted as not to show, but they appear if the urine is examined every two hours. They are usually found from the fourth to the sixth hour following the attack of colic. The findings with this method were always confirmed by the operation.

Remote Results of Periarterial Sympathectomy.—Mornard applied Leriche's periarterial sympathectomy in fifteen cases. Immediate results were noted only in four cases of leg ulcer from varices or phlebitis; also in a case of trophic ulcer. The healing was more rapid than with other treatments. But the cure did not persist; the lesion reappeared after from one to three months. The operation was without any effect in the gastric crises of tabes and in cases of gangrene.

63: 483-562, 1925

*Pathogenesis of Essential Enuresis. P. Delbet and A. Leri.—p. 483.
Traumatic Hypotension of Cerebrospinal Fluid. Stulz and Stricker.—p. 506.
Temporary Dislocation for Treatment of Old Fracture of the Ankle. J. Revel.—p. 515.
Primary Suture After Trephining. M. Béraud.—p. *523.* Cont'd.

Surgical Treatment of "Essential" Incontinence of Urine.—Operations were made by Delbet and Leri on twenty-four patients with enuresis; in twenty cases the roentgen ray showed spina bifida. Operation revealed in every case a fibrous band bridging the gap and compressing the dural culdesac and the nerves of the cauda equina, affecting chiefly the sensory fibers. This yellow band ligament was found not only in the lumbar region but also in the sacral, evidently due to defective union of the sacral vertebrae or to the persistence of the ligament in apparently united vertebrae. The operation consisted in resection of this band. There were one and sometimes several of these bands. Ten patients were cured; ten were only slightly improved; in three the results were negative. They regard this band as responsible for the enuresis. All with purely nocturnal enuresis were cured. The failures were all in patients with chronic nervous or mental disease or a history of some urogenital disease. The scar of the operation is liable to induce recurrence by its pressure.

Schweizerische medizinische Wochenschrift, Basel

55: 797-816 (Aug. 27) 1925

Evidence That the Cure Is Complete Under Psychotherapy. O. Veraguth.—p. 797.
The Kielland Forceps. E. Frey.—p. 801.
Secretory Insufficiency of the Stomach. O. Schirmer.—p. 802.
Immunity in Diphtheria. A. Thévenod.—p. 805.
Reducing the Gastric Secretion by Diet. A. Jarotzky.—p. 812.

Clinica Pediatrica, Modena

7: 385-448 (July) 1925

*Blood Grouping in Twins. A. F. Canelli.—p. 385.
*Virus of Acute Poliomyelitis. A. Pagani Cesa.—p. 397.
*Influence of Baths on Child Organism. A. Lorusso.—p. 405.
*Action of Cholesterol. G. Halfer.—p. 425.

Blood Grouping in Twins.—Canelli examined thirty-nine sets of twins from 8 days to 6 years old, and found that both of the univitelline twins were invariably of the same blood group. Four of the nonidentical twins were of different groups, including two of different sex. The majority of the twins were of Groups I and II of the Jansky classification.

Virus of Acute Poliomyelitis.—Pagani Cesa states that with the Di Cristina culture medium he succeeded in cultivating the virus from the lumbar puncture fluid during the febrile stage in six infants with acute anterior poliomyelitis. The virus could be transplanted in series directly or after filtration through the Chamberland or Berkefeld. When the slide was left in Löffler's solution for ten to twelve hours, the germs could be seen with the microscope. In two other young children at the eighteenth and twenty-second day the findings were negative.

Influence of Hot and Tepid Baths, Air Baths and Sun Baths on Child Organism.—Lorusso's tabulated data confirm that the modification of heat regulation and increase of insensible perspiration during air baths justify their use as a tonic measure to strengthen the general health.

Action of Cholesterol.—Halfer began with 0.20 gm. of cholesterol by the mouth, giving it daily to ten children convalescing from pneumonia or rickets or with congenital syphilis. Doses of 2 or 3 gm. were never surpassed. The number of erythrocytes increased regularly and permanently, and the blood corpuscles became more resistant. No toxic by-effects were observed in any instance, and Halfer thinks we can regard cholesterol as a useful adjuvant in treatment of anemia.

Pediatria, Naples

33: 861-916 (Aug. 15) 1925

*Examination of Sick Children. A. Borrino.—p. 861.
*Cholera Infantum. A. F. Canelli.—p. 874.
*Diabetes in Children. R. Pollitzer.—p. 885.
Some Necropsy Findings in Pleuritis. Sindoni and Guccione.—p. 893.
The Modern Conception of Scrofula. O. Cozzolino.—p. 902.

Psychology of the Sick Child.—Borrino insists that the physician should examine the mental and emotional development as well as the physical in young children with chronic disease. Only in this way can we obtain standards and data to guide in warding off abnormal conditions later. She outlines the method of examination she has found most instructive.

Cholera Infantum.—Canelli was surprised to find blood in the stools and vomit and often in the urine of 100 young infants with choleriform diarrhea. There was no biliverdin in the stools in the majority, but in the grave cases the excess of uric acid in the urine paralleled the progress of the toxic syndrome. Acetone and indican were frequently present in the urine, and both stools and urine gave a strong reaction for acid, but there was no glycuronuria. The blood and the nerve tissue were toxic for guinea-pigs. He defines the disease as a gastro-enteritis with degenerative and inflammatory lesions in organs, parenchymatous hemorrhages and gastro-intestinal hemosiderosis and hemorrhage. The other type of gastro-enteritis in young infants does not have the degenerative lesions nor parenchymatous hemorrhages, but there may be gastro-intestinal hemorrhages.

Diabetes in Children.—Pollitzer reports two cases, in boys of 6 and 14. The carbohydrate metabolism was extremely unstable, the hypoglycemia in the half hour after insulin was intense, as also alimentary and epinephrin hyperglycemia.

Policlinico, Rome

32: 1175-1206 (Aug. 24) 1925

*Intradermal Test for Hydatid Disease. N. Sette.—p. 1175.
Excellent Ultimate Results of Phrenicotomy in Pulmonary Tuberculosis. E. Curti.—p. 1180.
Spa Treatment of Cholelithiasis. G. Sabatini.—p. 1181.

Intradermal Test for Hydatid Disease.—Sette presents evidence that the fluid of a hydatid cyst can be filtered through porcelain and heated to 70 C. without losing its specific power to induce a typical reaction when injected intradermally in a subject infested with the echinococcus. He evaporates 150 c.c. of hydatid cyst fluid and mixes the residue with 10 c.c. of 0.9 per cent. sodium chlorid solution and 20 c.c. of glycerol; 0.1 c.c. of this fluid is used for the Casoni intradermal and subcutaneous tests. Both this extract and the filtrate proved durable, up to a year in his experience. Even with twice the amount he was unable to elicit a positive response in forty-six controls.

32: 365-424 (Aug. 1) 1925. Medical Section

*The Spleen in Hemorrhagic Disease. Prospero Mino.—p. 365.
*Mesenteric Lymphogranulomatosis. Giovanni Antonelli.—p. 391.
Primary Cancer in the Thymus of a Man. G. Cortese.—p. 417.

The Spleen in Hemorrhagic Maladies.—Mino's observation and research have convinced him that the theory of some special activity of the spleen in these conditions has only an apparently solid base. The same modifications of the platelets, leukocytes and bone marrow, obtained by irradiation of the spleen, can be realized by exposure of distant regions (ear). The resisting power of the vessels can be modified by irradiation of the ovary as well as of the spleen. Only in constitutional, hereditary idiopathic purpura, the effect of splenectomy reveals that this organ has evidently some influence on the still unknown pathogenic elements. He says that in symptomatic purpura, splenectomy has never given positive results, and seven deaths are recorded in forty splenectomies in cases with a rapid onset and acute course. He adds that a diminished number of blood platelets is no criterion for the differential diagnosis.

Lymphogranulomatosis.—In Antonelli's patient the mesenteric glands were almost exclusively involved, and the disease ran only a five months' course. The structure was of the blastoma type.

Crónica Médica, Lima

42: 97-128 (April) 1925

When to Operate in Acute Appendicitis. M. Castañeda.—p. 97.
*Calcium by the Vein in Tuberculosis. M. Arias Schreiber.—p. 100.
Case of Myiasis of the Skin. N. E. Cavassa.—p. 102.

Calcium by the Vein in Treatment of Tuberculosis.—Arias Schreiber says that the outcome surpassed all expectations in his 200 cases of pulmonary, surgical or inflammatory tuberculosis; even the most rebellious tendency to hemoptysis was promptly arrested. He used the calcium chlorid in 1, 1.2, 1.4 or 1.5 per cent. solution, injecting it in two series of fifteen injections each, with a ten day interval between the series. The fibroid cheesy form is less amenable than the others to this treatment.

42: 129-160 (May) 1925

Bismuth in Treatment of Leishmaniasis of Frontal Sinus. E. Escomel.—p. 129.
*Cultivation in Vitro of Vaccinia Virus. R. Flores Cordova.—p. 132.
*Gastric Digestion Under Certain Drugs. E. Guzman Barron.—p. 136.
Leishmaniasis Mistaken for Blastomycosis. P. Weiss.—p. 144.
Treatment of Chronic Gonorrhea. L. Arias Schreiber.—p. 154.

Cultivation of Vaccinia Virus in Vitro.—Flores Cordova uses an extract of testes from living rabbits as the culture medium, and states that the vaccine is exceptionally potent.

Gastric Digestion as Modified by Drugs Having a Special Action on the Vagus or Sympathetic.—Guzman Barron suggests that test injection of epinephrin or pilocarpin might prove useful in classifying gastric neuroses and as a guide to treatment.

Revista de Beneficencia Pública, Santiago

9: 263-386 (June) 1925. Partial Index

*Dispensaries for Congenital Syphilis. Ivan Prieto N.—p. 263.
*Destruction of Hospitals by the Earthquake. O. Oyaneder.—p. 278.

Policlinics for Congenital Syphilis.—Prieto discusses the disadvantages of the present system of caring for children with congenital syphilis, and outlines a plan for concerted action and mutual cooperation by dispensaries making a specialty of thorough treatment of congenital syphilis, with visiting nurses and carefully kept charts.

Reconstruction of the Chile Hospitals Destroyed by the Last Earthquake.—Oyaneder describes how the work of the hospital went on although all the older portions had been entirely destroyed. The Copiapó hospital had only the maternity, the children's ward and the kitchen left. A temporary Red Cross structure had to be used for the Vallenar hospital, which had been totally destroyed. The reconstruction has been on an elaborate plan. Only the women's pavilion, kitchen and laundry have been completed as yet. Funds for reconstruction of this hospital were collected by women's organizations in Argentina.

Revista Médica Latino-Americana, Buenos Aires

10: 1097-1173 (July) 1925

*Sclerosis of Pulmonary Artery. F. C. Arrillaga.—p. 1097.
Reactivation of the Wassermann Reaction. C. A. Videla.—p. 1103.
*The T Wave of the Electrocardiogram. G. Besco.—p. 1107.
*Gonococcal Vulvovaginitis in Little Girls. C. R. Castilla.—p. 1112.
Perforation of Roof of Acetabulum in Chronic Arthritis Deformans. T. Malamud.—p. 1116.
*Oxalic Acid Poisoning. W. E. Coutts.—p. 1118.
Case of Senile Dementia with Melancholia and Delirium. Camauer. —p. 1122.

Sclerosis of the Pulmonary Artery.—Arrillaga gives thirteen plates showing the clinical and microscopic aspect of Ayerza's disease. He regards it as a primary affection, of syphilitic origin, while Ayerza assumes that it is secondary to some chronic pulmonary lesion. The hypertrophy of the right ventricle and the histologic lesions and enlargement of the pulmonary artery entail the extreme cyanosis of these "black cardiacs," the dyspnea, polycythemia, hemoptysis and angina pectoris. Oblique roentgen examination is most instructive.

The T Wave in the Electrocardiograph.—Bosco reiterates that in heart disease the negative T wave in Leads I and II justifies a grave prognosis. With its persistence in spite of treatment, the patient will die within a year. In a single derivation, and in Lead III exclusively, the negative T wave has no diagnostic import.

Vulvovaginitis in Little Girls.—Castilla found evidences of inflammation and ulceration regularly in vulvovaginitis of 100 little girls. The inflammatory process usually involved the cervix. He regards these findings as indicating treatment with surgical solution of chlorinated soda. He instils once or twice a day, 5-8 c.c. of a 1 or 2 per cent. solution in olive oil, the pelvis raised. The fluid is retained for five or ten minutes and is then allowed to escape. Improvement was prompt in the ten cases in which this treatment was applied, and one was permanently cured; some of the others required renewed treatment later.

Oxalic Acid Poisoning.—In the two cases described, about 10 or 20 gm. of oxalic acid had been ingested. Treatment was with infusion of an isotonic or hypertonic solution of glucose, as retention of urea seems to be the principal disturbance. Coutts ascribes to this the cramps, and convulsions often observed in such cases. Pains and muscular stiffening in the epigastrium were the only symptoms in one of his; in the other there was a burning sensation and vomiting until after lavage of the stomach, but the urine was free from cells, and both recovered promptly and completely.

Semana Médica, Buenos Aires

2: 57-108 (July 9) 1925

*Suturing in the Depths of Cavities. Luis Samengo.—p. 57.
*Roentgenology of the Circulatory Apparatus. A. Viton.—p. 64.
The New Trend in Organized Prophylaxis of Tuberculosis. R. A. Vaccarezza.—p. 80.
Difficulties of Diagnosis of Certain Nodular Epitheliomas of the Liver. G. Aráoz Alfaro and P. Cossio, Jr.—p. 93.
Epithelioma of the Cornea. Belgeri and Lijó Pavia.—p. 97.
Vaccine Treatment of Woody Phlegmon of the Neck. Gret.—p. 99.
*Congenital Generalized Edema. J. Bazán et al.—p. 101.

Instrument for Suturing in the Depths of Cavities.—Samengo's instrument combines a needle holder, suture material holder and forceps. There is also an extra blade between the other blades to supply the plane of resistance for the tissues as the needle is drawn through the opening at the tip of this extra blade. The "Suturador" is especially designed for ear and throat work. It allows all the various steps of the operation to be done rapidly in the depths, with the sole exception of tying the knot. Fourteen illustrations accompany the description.

Roentgenologic Study of the Circulatory Apparatus.—The roentgen-ray findings with the heart and aorta are discussed, with fifty-three illustrations. The article supplements Viton's similar study of the respiratory apparatus in a preceding number.

Congenital Generalized Edema.—The child was born prematurely and presented universal and extreme edema. The mother had had acute nephritis following diphtheria three years before, and there had been a tendency to edema during the pregnancy. The child died without having cried. Bazán adds that there are only about eighty cases of congenital universal edema on record.

Archiv für Kinderheilkunde, Stuttgart

76: 161-240 (Aug. 22) 1925

*Renal Insufficiency in Childhood. A. Eckstein.—p. 161.
The Blood Proteins in Tuberculosis. H. Süssmann.—p. 172.
Heredity and Growth. J. Hertzka.—p. 190.
*Spastic Vomiting in the First Days of Life. F. Lust.—p. 203.
Blood from Adults for Prophylaxis Against Measles. Hilsinger.—p. 211.

Renal Insufficiency in Circulatory Disturbances in Childhood.—Renal disturbances due to chronic stasis are rare in children. Eckstein reports in detail such a case. The patient, who had a severe endocarditis and who developed *cor bovinum*, was observed from the age of 3½ years to his death at 8¾ years. The earliest renal symptom was a decrease in water output. Albumin was found in the urine in various amounts and up to as much as 1.8 per cent. The albuminuria decreased whenever the function of the heart was poorer, and at the same time the protein content of the ascitic fluid increased. The urine sediment did not show any parallelism with the albuminuria; leukocytes, erythrocytes and casts made their appearance at various times. The necropsy showed that the kidneys were not increased in size; the renal capillaries were strongly congested, but no formation of connective tissue was found. That a chronic passive hyperemia of five years' standing did not induce the development of interstitial connective tissue, may explain why the true contracted kidney is so rarely found in children.

Vomiting in the First Days of Life.—Lust reports three cases of new-born infants, who vomited violently, beginning with the first intake of food. The condition lasted only a few days, and he believes that it was caused by muscular spasms of the stomach.

Archiv für Verdauungs-Krankheiten, Berlin

35: 267-380 (Aug.) 1925

The Penetrating Gastric Ulcer. M. Einhorn.—p. 267.
Gastric Secretion After Corrosion with Crude Hydrochloric Acid. H. Kalk.—p. 280.
Studies on Fractional Testing of Gastric Secretion. F. Rothschild. —p. 286.
*Fermentation of Human Feces. H. Weiss.—p. 311.
Pathogenicity of Trichomonas. G. Szemző.—p. 318.
Blood Vessels in Pathologic Stomach. T. Bársony.—p. 324.
*Cold Applications on the Stomach. L. von Friedrich and Bokor.—p. 332.
Endocrine Glands and Intestinal Tract. F. Boenheim.—p. 337. Conc'n.

Cell Membranes and Fermentation of Feces.—If fine cell membranes are added to not fermenting feces, fermentation will begin within twenty-four hours. The same is true if these cell membranes are added to the food. Weiss concludes that all vegetables, even those which do not contain any starch, should be excluded from the diet for patients with fermentative dyspepsia.

Influence of Cold Applications on the Stomach.—The application of an icebag on the stomach does not in any way influence the shape, the tonicity, the motility and the pyloric mechanism of the stomach. The peristalsis, however, is increased after half a minute to a minute and a half. Since the same effect is obtained when the cold application is applied to any other area of the skin, Friedrich and Bokor conclude that the effect of a cold application must be due to a reflex mechanism

Deutsche medizinische Wochenschrift, Leipzig

51: 1387-1428 (Aug. 21) 1925

Endocrine Secretion and the Eye Sattler—p 1387.
Otolaryngology and Endocrine Secretion. Blohmke—p 1388
Endocarditis Lenta from Clinical Standpoint. Von Witzleben—p 1388
Autoblood Versus Autoserum H Koenigsfeld—p 1389
Treatment of Pulmonary Tuberculosis with Autoserum. Weicksel—p 1392
Rare Indications for Abortion H Küstner.—p 1396.
Origin and Fate of the Intra Ocular Fluid C. Hamburger—p. 1397.
Practical Obstetrics H. W. Hannes—p. 1398 Cont'd
***Symptom Free Infections H. Reiter.—p 1400*
Vertebral Fracture by Muscular Traction H Schütz—p 1402.
*A Case of Rat Bite Disease. V Gussew—p 1403
Generalized Vaccinia S Korach—p. 1403.
Dangers in Treatment of Psychoneuroses C. Romer—p 1404.
Aseptic Sheet for Obstetric House Practice. Kritzler—p 1406
Public Health G H. Sieveking—p 1409
The Quakers' Relief Work in Germany F. Dienemann—p 1410
Medico-Economical Conditions in Frankfort. W Hanauer.—p 1411.

Immunologic Results After Symptom-Free Infections with Spirochetes.—It is possible in various ways to infect mice with the spirochete of relapsing fever without causing a bacteremia or any symptoms of disease. Reiter has coined the term *stumme Infektion* for this condition These mice are immune against infections which prove to be lethal in control animals. Injection of killed spirochetes has not the same immunizing effect. This immunity can be transferred with the brain but not with the serum

Rat-Bite Fever.—Gussew reports a typical case of this disease which is interesting in so far as there are no previous cases on record from Lithuania or the neighboring countries.

51: 1439 1470 (Aug 28) 1925

*Examination of the Gallbladder B. O Pribram et al—p 1429
Roentgen Ray Examination of the Duodenum W Teschendorf.—p 1432
*Antibacteriophagic Action of Paratyphoid Serum. Sonnenschein. p. 1434
The Reducing Capacity of Urine W O Moor—p 1436
Ophthalmologic Diseases in Congenital Syphilis J Cassel—p 1437.
Tuberculin Reaction and Nonspecific Proteins M Fischer—p 1441.
*Retinal Hemorrhages in the New Born E Metzger—p 1446
Endocrine Arthropathy F. Boenheim and R Prinin—p 1447
Case of Criminal Abortion H Evers—p 1448
Dispensaries for Venereal Diseases D v. Pezold—p 1450
Health Service in Ukraine. I. Cholodny—p 1451
Psychanalysis Not Adapted for Krankenkassen Practice E Loewy-Hattendorf—p 1453

Roentgenologic Visualization of the Gallbladder.—Pribram, Grunenberg and Strauss used the Graham-Cole method of cholecystography on a large number of patients, and report very satisfactory diagnostic results. They believe it advisable to empty the gallbladder before the injection of the tetrabromphenolphthalein, and found that the injection of pituitary extracts answers this requirement perfectly In order to prevent the disagreeable ill effects which the injection of the dye causes in some patients, they gave atropin prophylactically with good results

"Antiphagin."—After injection of bacteriophage culture into experimental animals, their serum displays an inhibiting action on the bacteriophage used for the injections Sonnenschein did not witness "antiphagin" action in the serum of 100 patients with various diseases But in two paratyphoid patients he found an "antiphagin" against a paratyphoid bacteriophage.

Retinal Hemorrhages in the New-Born.—On the strength of experimental observations, Metzger emphasizes the importance of a negative pressure on the skull during delivery *for the genesis of retinal hemorrhages.*

Jahrbuch für Kinderheilkunde, Berlin

109: 249-378 (Aug.) 1925

Influence of Fatty Acids on the Intestines W Catel and F. v. Graevenitz—p 249.
*Experimental Studies on Water in the Diet E Schiff et al—p 287
Dystrophic Conditions in the Second Year of Life E Nassau—p 300.
*Complement and Cholesterol in Scarlet Fever F Szirmai—p 317.
The Cytology of the Colostrum M v Ambrus—p 333
Metabolic Studies in Lye Poisoning J v Petheö—p 338
Intelligence Tests in Children H Muller—p 345
Pirquet Test with Different Tuberculins. A Luüs and J Woorman.—p 352

Experimental Dehydration and Liver Glycogen.—Young dogs were kept on a diet consisting of desiccated milk, and very little water. These animals developed grave general disturbances and losses in weight The refraction of their serum increased (dehydration of the blood), and the glycogen content of the liver was markedly reduced; fatty changes occurred if the diet was kept up long enough. The addition of sugar to this diet hastened the pathologic changes mentioned above. In dogs kept on a diet deficient in water but free of proteins, no pathologic changes occurred Schiff, Bayer and Choremis conclude that the decrease of the liver glycogen is not caused by the dehydration but by toxic protein intermediary products.

Complement and Cholesterol Content of the Serum in Scarlet Fever.—Szirmai found that the cholesterol is usually decreased, but that the complement is not reduced, which is an argument against the theory that scarlet fever is an anaphylactic condition.

Klinische Wochenschrift, Berlin

4: *1673 1712 (Aug 27) 1925*

Biology of Inflammation S Bergel—p 1673
Surgical Treatment of Nephritis M Zondek—p 1681
**Refined Micromethods F Holtz—p 1685*
Flocculation Reactions in Syphilis F Weigmann—p 1687.
**Bilirubin Content of the Serum J Förster—p 1689*
Induced Cataract by Vitamin Deficiency W Stepp—p 1690
"Endocrine Disturbances in Scleroderma" Rothman—p 1691.
Biologic Standardization of Pituitary Extracts Loewe and Ilison.—p 1692
Alimentary Hyperglycemia and Folia Myrtilli. Mark and Wagner.—p 1692
Treatment of Anemias R Seyderhelm—p 1693
Fatal Accidents in Active Immunization Against Diphtheria E. Helmreich—p 1697
Critical Review of Gye's Research Teutschlaender—p 1698
The Blood Clot for the Wassermann Reaction H Dold—p 1710.

Improved Micromethods.—Holtz announces a new system of gravimetric methods for physiologic chemistry, which works with much smaller amounts of material than usually employed and with no less degree of accuracy. In this first report he explains the construction and handling of a scale which allows of an accuracy of 0.0001 mg

The Normal Bilirubin Content of the Blood.—Forster describes a colorimetric method for the determination of the bilirubin in blood. He records the findings in *234* cases, including sixty-three normal controls Under normal conditions the bilirubin may range from 0.2 mg. to 1.0 mg. per hundred cubic centimeters of blood serum

Medizinische Klinik, Berlin

21: *1255 1290 (Aug 21) 1925*

Clinic and Heredity F Meggendorfer—p 1255
*Sleep and the Sleep Center H Haenel—p 1258
*Influence of Ions on Action of Insulin E Kylin—p 1262
Ray Treatment of Tuberculosis of Upper Respiratory Tract L Haas.—p 1263
Blood Changes in Deep Ray Therapy. J Kottmaier—p 1265
Pulmonary Tuberculosis in Diabetics E Schonberger—p 1266
Epidemic Singultus Nussenbaum and Gurwitsch—p 1269
Treatment of Dysentery E A Mueller—p 1270
The Colon Bacillus and the Bacteriophage O Bail.—p 1271

Sleep and Sleep Center.—Reviewing the various theories on the mechanism of sleep, and analyzing clinical observations on disturbances of sleep, especially the clinical and pathologic material from patients with encephalitis lethargica, Haenel arrives at the conclusion that sleep must be centrally regulated The proper function of this regulation is dependent on the anatomic integrity of a certain part of the brain, *in the mesencephalon.*

Ions, Hormones and Vegetative Nervous System.—Kylin has demonstrated by clinical experiments that calcium ions, epinephrin and the sympathetic nervous system are antagonistic in their function to potassium ions, insulin and the pneumogastric nerve. Calcium ions, for example, have a depressing effect on the insulin action on blood sugar; potassium ions enhance this effect.

21: 1291-1328 (Aug. 28) 1925

Specific Treatment of Tuberculosis. H. Trunk.—p. 1291.
*Functional Liver Tests. H. Kähler.—p. 1295.
Operative Improvement of Insufficient Pneumothorax. Ulrici.—p. 1298.
*Abscesses in the Axilla. A. Rütz.—p. 1299.
*Hematology of Meningitis in Children. F. Heissen.—p. 1301.
Roentgen Rays and Genesis of Tumors. C. Schoenhof.—p. 1302. Cont'd.
The Pathogenesis of Gastric Ulcers. L. Jarno.—p. 1304.
A Case of Poisoning with Illuminating Gas. H. Fuchs.—p. 1306.
Traumatic or Surgical Scarlet Fever. L. Jurinac.—p. 1307.
The Histology of Hemolytic Jaundice. One Case. Dick.—p. 1309.
Insulin by Inhalation. E. Silten.—p. 1309.
Puerperal Complications. F. Eberhart.—p. 1311. Cont'n.
Experimental Research on Spirochetes. H. Kroó and A. Buschke. —p. 1313. Begun, p. 1276.

Functional Liver Tests.—Glycosuria after the ingestion of dextrose is not a reliable indicator for the functional efficiency of the liver. A test, the findings of which correspond much more closely with the clinical and pathologic findings, is to determine the blood sugar curve after the ingestion of galactose. This curve is much modified in all parenchymatous changes in the liver. Jaundice caused by diffuse inflammatory conditions, gives a positive response; jaundice caused by localized processes (tumors, for example) has a normal curve. In cirrhosis of the liver the hyperglycemia is of much increased duration, although there may be but little glycosuria. Kähler reports the results of the test on thirty-six patients, and declares that this galactose test is much superior to the dextrose test.

Roentgen-Ray Treatment of Axillary Sweat Gland Abscesses.—Rütz, who has treated about sixty patients with a combination of incision and roentgen-ray irradiation, believes that this combined procedure is the method of choice. He found histologically that the roentgen-ray treatment stimulates the formation of connective tissue; the sweat glands are structurally not altered, but their function is apparently lost.

Hematologic Differentiation Between Tuberculous and Purulent Meningitis.—In purulent meningitis many pathologic leukocytes and a shifting towards the left are found; there are only few monocytes. In tuberculous meningitis no pathologic leukocytes are present, and no shifting of the white cells, and the monocytes are increased in numbers. Heissen believes that these findings allow of a differential diagnosis.

Münchener medizinische Wochenschrift, Munich

***72:** 1409-1448 (Aug. 21) 1925*

*The Hygiene of Clothing. E. Friedberger.—p. 1409.
*So-Called Vagotonic and Sympathicotonic Symptoms. Ganter.—p. 1411.
*Glucose Test of Liver Function. W. Arnoldi.—p. 1414.
Pigmentations After Application of Cologne Water and Exposure to the Sun. E. Hoffmann and H. Schmitz.—p. 1414.
Ambulatory Treatment of Gonorrhea in Women. Wirz and Hirsch. —p. 1415.
Chemistry of Spinal Fluid in Relation to the Blood. K. Blum.—p. 1418.
*Spirochetes in Pernicious Anemia. A. Determann.—p. 1420.
Treatment of Syphilis with Bismuth. E. Nathan.—p. 1420.
A Modified Microtest for Blood Sugar. F. Lindauer.—p. 1422.
*Colloid Chemistry in Homeopathy. J. Traube.—p. 1422.
Sulphur in Rheumatism. Suessmann.—p. 1425.
Primitive Medicine and Homeopathy. S. Seligmann.—p. 1425.
Sex Distribution of Congenital Syphilis. H. Kirsch.—p. 1427.
Plague Epidemic in Greece, 1924. C. Seyfarth.—p. 1428.
Hernias in General Practice. H. Doerfler.—p. 1432. Conc'n. p. 1470.

The Hygiene of Clothing.—Friedberger makes a fervent plea for more hygienic conditions in our clothing, especially in summer clothing for men. He believes that the recent fashions in women's dress should lead men's fashions to more rational garments.

Vagotonic and Sympathicotonic Symptoms.—Ganter scrutinizes the Eppinger and Hess theory and comes to the conclusion that the diagnosis of sympathicotonic and vagotonic conditions is far too readily made. Since it is not possible to demonstrate the tonicity of the one or other system directly, but only by their effects on the organs in which they end, the special condition of a particular organ may simulate an increased or decreased tonus of the nervous system. The pharmacodynamic reactions which are widely used in this connection are unreliable. Certain symptoms, such as bradycardia, constipation, eosinophilia, which are generally referred to functional conditions of the vegetative nervous system, have never been proven to be of nervous origin.

Glucose Test of Liver Function.—In this preliminary communication Arnoldi describes the findings in 300 subjects after ingestion of 20 gm. of glucose—his new carbohydrate functional test of the liver. The bilirubin content of the blood serum rises, and the conditions of this rise seem to vary characteristically with different pathologic conditions.

Spirochetes in Pernicious Anemia.—Determann believes that the corpuscular elements, which Meessen described lately as spirochetes in the blood of patients with pernicious anemia, are broken up red cells, or hemoconia according to Türk. Determann found the same elements frequently in the blood of normal persons.

Colloid Chemistry and Homeopathy.—Traube enters into the rather violent discussion about homeopathy, which was started recently by Bier, and enumerates a large number of facts from his colloid chemistry studies to show how extremely small quantities of certain substances may exert very considerable effects, and that, indeed, small quantities of the same material may have the opposite effect to large quantities.

72: 1449-1494 (Aug. 28) 1925

Sacral and Paravertebral Anesthesia. A. Läwen.—p. 1449.
*Relation of Frambesia to Syphilis. F. Jahnel and J. Lange.—p. 1452.
*Change of Exophthalmic Goiter Into Myxedema After Roentgen-Ray Treatment. H. Curschmann.—p. 1453.
Malaria Treatment of Tabes. F. Bering.—p. 1455.
The Innervation of the Stomach. G. Thorell.—p. 1456.
Hypnosis and Vegetative Nervous System. Marcus and Sahlgren. —p. 1457.
Facts and Conception of Accidents. E. Kahn.—p. 1458.
The Fate of Congenital Syphilitics. A. H. Hübner.—p. 1459.
Anesthesia Treatment of Insanity. F. Wiethold.—p. 1461.
Calcium Treatment of Schizophrenia. W. Dodel.—p. 1462.
Sulphur Treatment with Homeopathic Dosage. W. Richter.—p. 1465.
Lead Poisoning. F. Koelsch and H. Ilzhöfer.—p. 1466.
Serodiagnostic Methods in Syphilis. E. Meinicke.—p. 1467.
Technic of Lumbar Puncture. S. Seeliger.—p. 1467.
Eatable and Poisonous Mushrooms. H. Raebiger.—p. 1468.
The Physician and the Penal Code. Balser.—p. 1474.
School Work in One or Two Daily Sessions. E. Doernberger.—p. 1476.

Syphilis and Frambesia.—Jahnel and Lange tried to infect with the frambesia spirochetes four persons with general paresis, but the patients proved to be immune against this virus, very likely on account of the close biologic relation which exists between the spirochete of syphilis and that of frambesia.

Transformation of Exophthalmic Goiter into Myxedema.—Curschmann reports the case of a woman, aged 41, who developed acute but mild exophthalmic goiter. After careful roentgen-ray treatment she developed a moderately severe myxedematous condition.

Wiener Archiv für innere Medizin, Vienna

11: 1-200 (Aug. 15) 1925

*Acute Leukemia. H. Dimmel.—p. 1.
The Genesis of Breathing Sounds. A. Winkler.—p. 15; p. 95.
Rat-Bite Disease. A. Arkin.—p. 133.
*The Clinical Aspect of Typhus. M. M. Gubergritz.—p. 159.
*Viscosity of the Serum in Joint Disease. Kauftheil and Simó.—p. 191.

Acute Leukemia.—Dimmel reports in detail two cases with the necropsy findings. He believes that acute leukemia is not an infectious disease. The histologic changes are very similar to those found in chronic leukemia, and the predominating hematologic features are the quite immature and degenerated cells.

The Clinical Aspect of Typhus.—The incubation period seems to be five to twelve days. Rather characteristic is a drop in temperature on the second day (sometimes the third or fourth day) after the onset of the fever, which is followed by a high rise. After about fourteen days the temperature returns to normal within two days. Arrhythmias of the pulse and low blood pressure are observed in most of the cases. The physical signs and the clinical significance of the circulatory disturbances are thoroughly discussed. Bronchopneumonia is frequent. Various disturbances of the intestines and the urinary system are observed. Women frequently menstruate at the onset of the disease, but abortion is very rare. A leukopenia is usually found in the beginning, which at the end of the first, or the beginning of the second week is followed by a mild leukocytosis. Gubergritz bases his report on observations of more than 200 patients, which he saw during the recent epidemics in Russia.

The Specific Viscosity of the Blood Serum in Joint Diseases.—Kauftheil and Simó found that the specific viscosity of the serum is .96 to .99 in normal persons, and that it is increased in joint disease parallel to the amount of tissue waste and the severity of the inflammatory processes.

Wiener klinische Wochenschrift, Vienna

38: 927-950 (Aug. 20) 1925

Varicose Veins and Sunken Arches. G. Nobl and F. Remenovsky.—p. 927. Cont'd.
*A Case of Very Acute Lymphogranulomatosis. A. Brunner.—p. 930.
A Micromethod to Test the Lability of the Plasma. J. Wegierko.—p. 932.
Psychogenic Pain on Pressure in the Epigastrium. K. Staunig.—p. 934.
Kaufmann's Water Test in Cardiac Disease. Arpád v. Torday.—p. 934.
History of Therapy. I. Fischer. Supplement.—pp. 1-10.

Acute Lymphogranulomatosis.—Brunner reports the case of a woman 27 years old who died, within thirteen days after the onset of symptoms, under the clinical picture of acute heart failure. The necropsy revealed an extensive lymphogranulomatosis.

38: 951-976 (Aug. 27) 1925

Pseudosclerosis. Dimitz and Vujič.—p. 951. Cont'd.
*The Vesicular Breathing Sound. A. Winkler.—p. 955.
**Sclerodermia in the New-Born. R. Dolinšek and J. Ermenc.—p. 957.*
Diathermy Treatment of the Pituitary Region. Grünbaum.—p. 959.
*Varicose Veins. Nobl and Rémenovsky.—p. 960. Conc'n.
Wilhelm Roux and His Work. G. Pommer.—p. 963. Cont'd.
Treatment of Vocal Disturbances. E. Fröschels.—p. 967.

Mechanism of the Vesicular Breathing Sound.—Winkler believes that his experimental observations prove that the vesicular breathing sound does not originate in the alveoli but in the peripheral ramifications of the bronchi.

Sclerodermia in Infants.—Dolinšek and Ermenc report two cases of this disease with a very benign course. They believe that this disease is not identical with the one observed in older children, and they advocate Mayerhofer's term "benign, indurative infiltration of the subcutaneous tissue in the new-born."

Varicose Veins and Sunken Arches.—These two conditions are frequently found associated in the same patient, but it is not probable that one is the cause of the other. It appears rather that both conditions develop on the same predisposition, a constitutional weakness of the mesenchymatous tissue in the walls of the veins, in joint capsules and in ligaments; and that habitual influences frequently make the diseases manifest. Nobl and Remenovsky furthermore emphasize the relations which may exist between what they call "the varicose complex" and other acquired bone and joint anomalies.

Zeitschrift für Kinderheilkunde, Berlin

39: *645-760* (Aug.) 1925

Clinical Observations on Rickets. E. Maurer.—p. 645.
Observations on Spasmophilia. H. Vollmer and J. Serebrijski.—p. 655.
*The Gastric Lipase. M. Landsberger.—p. 665.
Pyuria in Infants. W. Lasch and H. Presting.—p. 668.
*Paratyphoid in Children. W. Schmidt.—p. 681.
*Pirquet-Negative Children in Tuberculous Families. Zimmermann. p. 692.
*Water Balance in Myxedematous Children. Nobel and Rosenblüth.—p. 702.
*Therapy of Myxedema. E. Nobel and A. Rosenblüth.—p. 708.
Acute Infections in Diabetic Children. R. Priesel.—p. 725.
Microcephalic Idiocy. S. Schmal.—p. 732.
Hormone Therapy in Rickets. H. Flesch.—p. 743.
Hormone Salve Treatment of Rickets. L. Langstein and H. Vollmer.—p. 751.
Lymphangitis after a Tuberculin Reaction. H. Koch.—p. 755.

Studies in Gastric Lipase.—Landsberger found that lipase from the stomach of infants splits tributyrin more quickly in whey of human milk than in that of cow's milk. The inorganic compounds in the whey are not the cause for this difference.

Paratyphoid in Childhood.—Intestinal paratyphoid infections in young children may produce a very mild disease and simulate an ordinary diarrhea. Schmidt emphasizes the epidemiologic importance of diagnosing such cases properly.

Noninfected Children in Tuberculous Families.—Zimmermann reports anew some data which show that a considerable number of children, who are exposed to tuberculosis by coresidence with tuberculous persons, do not contract the disease and do not become sensitive to tuberculin.

Water Balance in Myxedema.—Nobel and Rosenblüth found that in myxedematous children the insensible perspiration is diminished and that the quantity of the feces in relation to the quantity of food is decreased.

Treatment of Myxedema.—Nobel and Rosenblüth publish a table which shows how much thyroid substance, according to the size of the patient, must be given in order to obtain a satisfactory physical and mental development.

Zentralblatt für Chirurgie, Leipzig

52: *1937-1984* (Aug. 29) 1925

Neurotomy of the Depressor Nerve in Angina Pectoris. S. P. Fedoroff and K. P. Saposchkoff.—p. 1937.
Resection of the Knee. A. Schanz.—p. 1942.
Isnardi's Operation for Varicocele. E. Faminski.—p. 1944.
Treatment of Contracted Knee Joints. M. B. Juckelson.—p. 1946.
Practice and Theory in Cancer Research. A. Greil.—p. 1950.
Beck's Apparatus for Blood Transfusions. G. Haselhorst.—p. 1961.
Gastrotomy for Foreign Bodies in the Esophagus in Children. H. Burckhardt.—p. 1963.
Rupture of Spleen and Pancreas in Boy; Recovery. Havlicek.—p. 1967.

Zentralblatt für Gynäkologie, Leipzig

49: 1937-2000 (Aug. 29) 1925

*The Fate of Children of Eclamptic Mothers. L. Neugarten.—p. 1938.
Roentgen-Ray Injuries to Germinal Cells. L. Kraul. p. 1945.
Hemagglutination in Triplets. R. Ganther.—p. 1948.
Is There a Specific Therapy for Uterine Cancer? C. J. Wederhake.—p. 1951.
*Glycogen Determinations in the Vaginal Secretion. H. Franken.—p. 1958.
Congenital Elephantiasis. Heusler.—p. 1962.
*Injuries by Credé's Method. F. Sieber.—p. 1969.
Bleeding from the Tubes During Menstruation. P. P. Müller.—p. 1977.

The Fate of Children of Eclamptic Mothers.—Neugarten traced thirty-six children and concludes that the eclamptic condition of their mothers at their birth did not in any way unfavorably influence their development.

Glycogen Estimation in the Vaginal Secretion with Pregl's Iodin Solution.—Franken has demonstrated that the color change of Pregl's iodin solution, which is supposed to be specific for glycogen, can be caused by other substances in the vagina, particularly by lactic acid.

Injuries After Credé's Method.—Sieber draws attention to the fact that a forceful application of Credé's method, especially in weakened and anemic women, may result in very severe—even fatal—shock.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: *445-568* (July *25*) 1925

**Renal Glycosuria Plus Diabetes Mellitus. Vogelenzang.—p. 446.*
The So-Called Epitarsus. F. Wibaut.—p. 460.
Malaria Treatment of General Paralysis. M. J. ten Raa.—p. 465.
Creeping Disease in a Child at Apeldoorn. Levy.—p. 479.
Mental Derangement in Tertian Malaria. J. de Hartogh, Jr.—p. 482.

Combination of Diabetes Mellitus and Renal Glycosuria.—Vogelenzang reports two cases of this combination and states that he knows of no analogous cases in the literature. The men, aged 47 and 39, had presented symptoms suggesting diabetes for several months up to three years, but the sugar content of the blood was constantly at or below the normal figure. The glycosuria rose and fell with the diet and the glycemia with alimentary tests in the same manner as the glycemia in true diabetes. The only explanation, he says, is a casual combination of true diabetes and renal glycosuri as he insists there can be no transition between two such opposite affections. He adds that the renal factor has a favorable influence on the diabetes. It is certainly a great advantage that the sugar is cast off with such a low glycemia. He does not think that dietetic restrictions are necessary. There is danger, however, of carbohydrate starvation from the excessive losses. Both of his patients had acetonuria, and it increased when carbohydrates were restricted. Galambos has reported a case with 97 to 156 gm. of sugar in the urine to 0.089 per cent. of sugar in the blood, fasting, and death in coma a year later.

2: *797-904 (Aug. 15) 1925*

*Treatment of Puerperal Sepsis. B. S. ten Berge.—p. 798.
*Stain Tests of Liver Function. J. L. A. Peutz.—p. 809.
*Deranged Cystin Metabolism. G. O E. Lignac.—p. 819.
Acute Myeloid Leukemia. K. Pelger.—p. 828.
Ontogenetic Recapitulation as a Hormone Phenomenon. L. Bolk.—p. 844.

Treatment of Puerperal Sepsis.—Ten Berge relates that two died of twenty-four women with sepsis, after childbirth or abortion, treated by Luker's method of injection of a polyvalent streptococcus antiserum followed by intravenous injection of quinin. Parallel series treated the same otherwise, *but without the antiserum and quinin, gave identical* results.

Stain Tests of Liver Function.—Peutz prefers the Rosenthal method: estimation of the proportion of the stain retained in the blood serum, instead of the proportion eliminated in the bile. His experiences with 137 cases confirmed that tetrachlorphthalein is eliminated almost exclusively by the bile, but the test throws light on only one function of the liver, namely, the ability to eliminate foreign substances. Azorubin appeared in the bile in less than five minutes in dogs and fifteen minutes in man, but it was eliminated to some extent by the kidneys. This detracts from its value as a liver test.

Cystin Metabolism in Children.—Lignac ascribes a causal import to the deposits of cystin he found in three male infants who had succumbed to progressive atrophy. He reports here a new case. Hydrocephalus had developed with chronic meningitis consecutive to epidemic meningitis in early infancy. The infant (female) died from progressive atrophy at the age of 14 months, and one or two large calculi —composed almost entirely of cystin—were found in each kidney pelvis. The kidneys were extremely pathologic, and there were signs of mild rachitis. On the basis of recent research by himself, Mendel and others, Lignac theorizes to explain the importance of cystin for the oxidative processes. He accepts the retarded growth in these four instances of deranged cystin metabolism as the consequence of the defective assimilation of this indispensable amino-acid.

Finska Läkaresällskapets Handlingar, Helsingfors

67: *621-689 (July) 1925*

*Air in Cerebral Ventricles. A. Krogius.—p. 621.
*Prophylaxis of Leprosy. L. W. Fagerlund.—p. 636.
The Charcot Centennial. J. Hagelstam.—p. 647.
Pulmonary Tuberculosis in the Army. V. Stierncreutz.—p. 664.
Oatmeal in Infant Feeding. P. v. Bonsdorff.—p. 668.

Air in the Ventricles of the Brain.—Paroxysmal intense headache with frequent vomiting and escape of a colorless fluid from the nose, after an accident involving the head, were explained by fracture at the base of the brain and accumulation of air in the ventricles. Eight similar cases of traumatic pneumocephalus have been published; five terminated in recovery. The roentgen-ray findings are characteristic.

Prophylaxis of Leprosy.—Fagerlund reports a case of leprosy which seemed to have been conveyed by head lice. The infection was restricted to a local focus. Sandes and Goodhue have presented evidence which incriminates bedbugs as a possible vector of leprosy.

Hospitalstidende, Copenhagen

68: *577-600 (June 25) 1925*

Relations between Nodular Erythema and Tuberculosis. T. Oldenburg. —p. 577. Conc'n.
*Rays from Cod Liver Oil. H. Haxthausen.—p. 585.

Radiation from Cod Liver Oil.—Haxthausen relates that a photographic plate laid on a Petri dish of cod liver oil shows something resembling photographic action with a four to six hours' exposure. The openings cut in an interposed black paper, and the differences in the action according to the depth of the cod liver oil apparently confirm the reality of the photographing faculty. On the other hand, the action was entirely arrested by a sheet of glass or of quartz, and the electroscope findings were negative. The action may be of the same nature as the "Russel effect" on the photographic plate, the "Moser ray," which is due to diffusion of some chemical substance with possibly some supplementary photographing energy. There seems to be a certain parallelism between the photographic efficiency of the cod liver oil and its curative action in rickets. Linseed oil possesses the faculty to a slight degree but not butter, milk, eggs, olive oil, etc. Vegetable oils acquired it, however, after exposure for an hour to ultraviolet rays. Linseed oil was preeminent in this respect. Mineral oils did not acquire the faculty under any conditions, but galvanized iron wire and wood developed it after irradiation. This is interesting in view of Hume and Smith's statement that irradiation of the glass vessel had no action on experimental rickets unless there was sawdust in the bottom of the glass. The fats in the skin have a similar action on the sensitive plate after ether extraction and irradiation. The action of light on rickets may be due to the effect on the fats in the skin. The research reported confirms, he says, Kugelmass and McQuarrie's conclusions as to the connection between the antirachitic and the photographic action.

68: 601-624 (July 2) 1925

*Test for Reaction of Arterial Blood. P. Drucker and G. E. Cullen. —p. 601.
*Prognosis of Croupous Pneumonia. S. Christensen.—p. 609.
*Acidosis and Retention of Chlorin in Pneumonia. C. Holten.—p. 614. Conc'n, p. 625.
*Virulence Tests in Gynecology and Obstetrics. O. K. Svenningsen. —p. 620. Begun, p. 594.

Test for Reaction of Arterial Blood.—Drucker and Cullen describe a method for examining the blood, drawn under paraffin oil, without loss of carbon dioxid.

Pneumococcus Types in Pneumonia.—Christensen declares his experience in 150 cases indicates that the prognosis cannot be based on the type of pneumococcus involved.

Acidosis and Retention of Chlorid in Croupous Pneumonia. —Holten's search for acids in the urine of thirteen pneumonia patients was constantly negative with the exception of lactic acid. The urine contained lactic acid, and he theorizes that this is responsible for the retention of chlorid, the organic acid acting on the tissues, especially on the kidneys.

Virulence Tests in Gynecology and Obstetrics.—Svenningsen regards the Ruge method as a valuable aid in oversight of the course of the infection and thus a guide to treatment.

Hygiea, Stockholm

87: 529-576 (July 31) 1925

*Kidney Calculi. J. Hellström.—p. 529.
Anatomic Basis for Vision. S. E. Henschen.—p. 555.

Kidney Calculi.—Hellström emphasizes the necessity for determining the causes for the production of the calculi, their nature, and whether they are in a progressive, stationary or retrogressive stage. He had 128 patients with kidney or ureter calculi in 1911-1922, and 85 per cent. have been reexamined lately. Nephritic colic was present in 68 per cent. and signs of pyelitis in 22 per cent. of the seventy-five men and 50 per cent. of the fifty-three women. In 10 per cent. of ninety-two cases the parents had likewise had nephrolithiasis. In ten, staphylococci seemed to have been the nucleus of the calculus. There was spontaneous passage of the calculi in 38 per cent.; in three cases a large branching calculus was cast off spontaneously. It had developed rapidly during extension treatment of a fracture or under other unusual circumstances. As the patients resumed their daily life, the loosely structured stones yielded to the restored *normal conditions in the urine and disintegrated.*

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CANCER MORTALITY IN THE TEN ORIGINAL REGISTRATION STATES

TREND FOR THE PERIOD 1900-1920[*]

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The progressive increase in the cancer death rates shown in the mortality statistics in practically all civilized countries has invited the serious attention of students of the public health. The more optimistic are of the opinion that these increases in the death rate may be accounted for by improvements in medical diagnosis, increase in the accuracy of vital statistics in general, greater precision in filling out death returns, changes in the age distribution of the population and similar factors.

Yet others are inclined to a gloomier view of the situation. They hold that the magnitude of the observed increases in the death rate is too great, too general in its distribution to be accounted for in any such way, so that the apparent is also an actual increase in the cancer mortality.

Because of the importance and interest of this question, it was thought well worth while to attempt a critical analysis of the course of the cancer mortality in the ten original registration states; i. e., Connecticut, Indiana, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Rhode Island and Vermont. This area was chosen because it is the only one available in this country for continuous study over the selected period of twenty-one years, as the other states now forming the registration area were added from time to time to the original ten.

Moreover, these states, with the exception of Indiana and Michigan, were all situated in a similar geographic section. The population, about 19,800,000 in 1900 and more than 27,000,000 in 1920, represents about 25 per cent. of the total population of the United States, and hence is sufficiently large to give considerable mass value to the data. Besides this, the population is about as homogeneous a group as we are likely to get in a country made up of such diverse racial stocks as ours, and it exhibited about the same changes in racial composition, owing to immigration during the period of observation.

The source of the data for analysis was the published mortality statistics of the U. S. Bureau of the Census, and the decennial census reports.

The following method of study and analysis was employed:

Taking the enumerated populations of "all ages," and also for the specific age groups "under 5 years," 5-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, "70 years and over" as given in the U. S. census reports of 1900, 1910, 1920, the intercensal population of all ages and by specific age groups was estimated by the arithmetical method. In estimating the population, compilations were made as of January 1 instead of July 1 because of slightly greater convenience, while at the same time no sensible error in the comparative validity of the tables was introduced. Since specific age groups were dealt with, the population of unknown age was omitted from the estimated figures.

General cancer death rates and specific death rates were then computed, first, for all forms of cancer and then for cancer by the seat of organ affected, the international classification[1] being used. In the case of cancer of the breast and cancer of the female genital organs, rates were computed on the basis of the estimated female population, as cancer of the breast is almost wholly, and cancer of the female genital organs exclusively, confined to that sex.

The extent of death certification by medical men, the changes and improvements in the practice of death certification and in diagnosis, the corrections to be applied for changing age distribution, and finally changes in racial stock due to immigration and the effects of these factors on the mortality rates were each considered in their turn. The results of this analysis and interpretation of the data are now in the process of publication. They are entirely too long to be given in extenso here. However, by using a somewhat different method of age grouping, the main results of the inquiry, their interpretation, and the resulting conclusions may be briefly presented.

The population aged 40 years and over is the important age group, so far as cancer mortality is concerned. In 1900, in the states under consideration, this age group furnished about 89.8 per cent., and in 1920 about 92.5 per cent. of all the cancer deaths.

The population 40 years and over of the ten original registration states was 5,313,459 in 1900; in 1920, 8,145,709. It had the age distribution given in Table 1.

From this age distribution the somewhat unexpected fact is noted that, in spite of the increase in the median age of the general population that has taken place since 1900, in the population aged 40 years and over, the proportion of elderly persons 60 years and over was greater in 1900 than it was in 1920 (29.17 and 28.14 per cent., respectively). If we redistribute the 1920 population of 40 years and over according to the 1900 percentage composition and apply the appropriate 1920 cancer death rates to each of the resulting age groups, it is found that, instead of the 25,368 that were reported for this section of the population, 25,806 deaths would have occurred. This corresponds to a rate of 316.8 per hundred thousand, or 5.4 points higher than the observed 1920 rate of 311.4.

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[*] Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] In the international classification of causes of death, cancers are thus divided: The general rubric is: "cancer and other malignant tumors' which, in turn, is subdivided into: (1) cancer of the buccal cavity; (2) cancer of the stomach and liver; (3) cancer of the peritoneum, intestines and rectum; (4) cancer of the female genital organs; (5) cancer of the breast; (6) cancer of the skin; (7) cancer of other organs or of organs not specified. It should be noted that this classification was not quite uniform for the twenty-one years. Thus, prior to 1910 we find the rubrics "cancer of the mouth" and "cancer of the intestines" in the place of "cancer of the buccal cavity" and "cancer of the peritoneum, intestines and rectum." These differences in classification may have had some effect on the figures, though this was probably small.

TABLE 1—*Age Distribution of Ten Original Registration States*

Age Group	1900 Population	1900 Per Cent	1920 Population	1920 Per Cent
40-49	2,228,723	41.94	3,421,204	42.00
50-59	1,534,625	28.88	2,431,692	29.85
60-69	963,991	18.14	1,453,490	17.84
70	586,120	11.03	839,413	10.30
	5,313,459	99.99	8,145,709	99.99

From this it follows that the cancer death rates in this group of the population may be compared for the period of 1900-1920 without the necessity of introducing any correction for a changing age distribution, as any correction for this factor would have the effect of slightly increasing instead of lowering the rates of the later years of the period

Therefore, we arrive immediately at the conclusion that any increases observed in the cancer deaths of this group of the population are independent of changes that may have taken place in the age distribution.

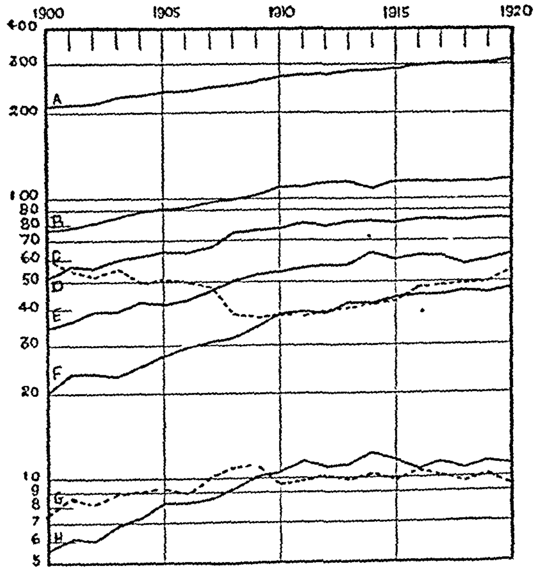

Chart 1—Death rate, per hundred thousand of population, from all forms of cancer and by site of organ affected, in age group 40 years and over, in the registration states of 1900 for the period 1900 1920 *A*, cancer, all forms, *B*, stomach and liver, *C*, other organs or organs not specified, *D*, female genital organs, *E*, female breast; *F*, peritoneum, intestine and rectum, *G*, skin, *H*, buccal cavity.

Chart 1 and Table 2 show the changes that have occurred in the death rates from cancer of all forms, and by site of the organ affected in the population 40 years and over, the rates for cancer of the breast and cancer of the female genital organs being based on the female population 40 years and over, which has practically the same age distribution as that of the male.

From this chart and table it is obvious that pronounced increases have taken place in the death rate from cancer of all forms, and in nearly all the cancers of the different organ seats, the only exception being the rubric "other organs or organs not specified," of which more will be said later.

Comparing the initial and the final rates, the percentage increases given in Table 3 are observed. It is apparent that with the exception of cancers of the skin and cancers of other organs or organs not specified, the increases have been pronounced and striking. Cancers of the peritoneum, intestines and rectum have shown the greatest advance, the percentage increase over the 1900 rate being 148.4. Cancers of the skin, on the other hand, as shown by the chart, have shown no increase in the rate since about 1909, while the curve for other organs or organs not specified is different from that for other varieties of cancer in that the curve shows a pronounced downward concavity.

TABLE 2—*Death Rate from Cancer* *

Year	Cancer, All Forms	Buccal Cavity	Stomach and Liver	Peritoneum, Intestine and Rectum	Female† Genital Organs	Breast†	Skin	Other or Unspecified Organs
1900	212.0	5.50	77.1	19.0	51.0	34.4	7.36	60.75
1901	218.1	6.13	78.1	23.7	56.7	36.6	8.59	55.4
1902	217.4	6.0	80.6	23.69	55.9	39.5	8.06	51.65
1903	227.9	6.84	85.0	22.95	60.4	39.5	8.79	54.85
1904	232.2	7.25	89.2	25.03	61.9	42.3	8.98	50.4
1905	238.8	8.06	90.8	27.48	63.6	41.2	9.13	51.4
1906	240.0	8.11	91.6	29.2	62.6	42.7	8.79	50.3
1907	248.5	8.35	96.2	30.91	65.8	46.6	9.95	47.45
1908	251.0	9.14	99.3	31.44	74.5	50.1	10.91	38.6
1909	259.0	10.08	102.1	34.9	75.7	53.0	11.0	37.37
1910	270.8	10.4	109.0	38.28	77.8	54.2	9.46	38.61
1911	273.8	11.35	107.5	39.5	80.7	55.9	9.81	38.12
1912	278.0	10.82	112.5	38.49	78.8	57.2	10.07	38.91
1913	286.0	10.98	114.0	42.2	82.3	56.5	9.69	40.5
1914	286.0	12.24	107.0	41.88	83.1	64.0	10.19	42.11
1915	293.2	11.51	114.5	44.38	81.2	59.8	9.81	43.45
1916	300.0	10.54	115.1	44.96	83.6	61.6	10.47	47.21
1917	301.4	11.25	114.1	45.0	84.3	62.0	10.13	48.75
1918	299.7	10.74	113.6	46.95	82.6	58.3	9.57	49.03
1919	302.3	11.25	114.1	45.45	84.4	59.5	10.11	50.2
1920	311.4	11.18	116.2	47.2	84.0	62.8	9.38	54.9

* The rate given is that for each hundred thousand of population, aged 40 years and over, all forms and by site of organ affected, in the ten registration states of 1900, for the period 1900-1920

† These rates figured on women, aged 40 and over.

As explained by the Census Bureau, the form of this curve is undoubtedly due to increased precision in stating the site of the malignant growth on the death certificate, the fuller information resulting from the efforts of the Census Bureau and local registrars to improve death registration, permitting the assignment of a larger proportion of cancers to the proper seat of the disease.

Reference to the curve, however, shows us that apparently this gain in accuracy, which produced a striking drop in the mortality rate under this rubric in the period 1900-1909, became stabilized at about that time, as the curve for this classification of cancer shows a steady rise, the percentage increase in the rate from 1910 (the low point) to 1920 being 47 per cent. Since the precision of death certification was presumably as great in 1920 as in 1910, this rise in the death rate curve from that year must be due to an increase in the reported number of deaths of persons 40 years and over from cancers of this class. The types of cancer classified by the Census Bureau under the rubric "cancer of other organs or organs not specified" are cancer of the larynx, lungs and pleura, pancreas, kidneys and suprarenals, prostate, bladder, brain, bones (except jaw), testes, and others of this class.

On the face of things, in the population 40 years and over, and independent of any change in age distribution there has been a pronounced increase in all forms of cancer, and of cancer of nearly all the specified sites. Before accepting this as an actual increase in the cancer mortality, however, we should subject these data to some interpretation.

The validity of mortality returns are, of course, importantly affected by the extent to which causes of death are reported by members of the medical profession and not by laymen, as is too often permitted.

However, so far as the states in question are concerned, inquiry showed that practically 100 per cent. of death returns, for the period under consideration, were signed by duly licensed physicians, and, consequently, the diagnostic error was that inherent in the diagnoses of the medical profession in general, uncomplicated by errors due to the reporting of deaths by laymen.

Statistically, therefore, the mortality statistics of the ten original registration states have a high degree of validity, and from this standpoint are much more reliable than those of certain foreign countries that permit laymen to certify to causes of death.

As Willcox points out, another factor that may alter the reliability of death returns is the extent of available medical services. In regions where physicians are scarce, the death returns are less trustworthy than where they are plentiful.

From this standpoint, however, the ten states considered have little to be desired. In 1906, the total number of physicians in these states was 33,127, a ratio to the population of 1 : 666. In 1921, this number was 39,389. a ratio of 1 : 708.

From this it is evident that in these registration states the ratio of medical men to the general population is very high, more than twice as high, for instance, as in England or in Germany. This betokens a high degree of availability of medical services for diagnosis and treatment of the sick. Moreover, we could not ascribe part of the observed increase in the cancer death rates to increase in the availability of medical services, as the ratio of physicians to the general population was slightly greater during the early years of the period of observation than it was later.

TABLE 3.—*Percentage Increases in Death Rate from Cancer of All Forms*

	Death Rate per 100,000		Per Cent. Increase
	1900	1920	
Cancer, all forms	212.0	311.4	46.9
Buccal cavity	5.5	11.18	103.4
Stomach and liver	77.1	116.2	50.7
Peritoneum, intestines and rectum	19.0	47.2	148.4
Female genital organs*	51.0	84.0	64.7
Breast*	34.4	62.8	82.6
Skin	7.36	9.38	27.4
Other organs or organs not specified	60.75	54.9	9.6 decrease

* Female population 40 years and over

Consequently, since no correction resulting either from lack of medical certification or available medical services need be applied to these rates, the remaining elements that should be examined for trustworthiness, and suitably corrected if need be, consist in allowances that should be made for improvements in the precision and accuracy in returning causes of death, progress in medical diagnosis, and the influence on the cancer death rate due to the changes wrought in the racial stock by immigration.

Even casual examination of the mortality returns over a series of years shows that a pronounced change in the direction of greater precision and detail in the filling out of death certificates must have taken place. An important improvement in this direction is demonstrated, as pointed out by Willcox, by Howard and by others, but the great changes that have taken place in the deaths reported in this age group are due to "indefinite" causes and to senility. This is well shown in Chart 2.

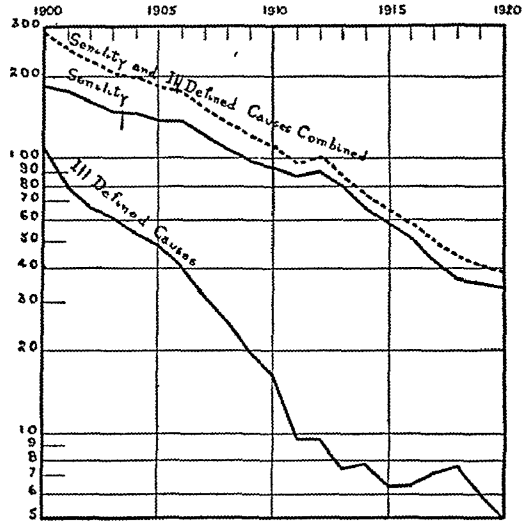

Chart 2—Death rate, per hundred thousand of population, from senility, ill defined causes and the combined rate, in age group 40 years and over, in the registration states of 1900 for the period 1900 1920.

While the general death rate in persons 40 years and over has shown but little change during the period of observation, this chart shows that the death rate from "ill defined" causes fell during the twenty-one year period from 108 to 5, a decrease of more than 95 per cent. In similar fashion, the mortality rate from senility declined from 185.0 in 1900 to 34.1 in 1920, a decrease of nearly 82 per cent.

The drop in the combined death rate from these causes has been from 293 in 1900 to 39.1 in 1920, a decrease of nearly 87 per cent.

Since there has been no significant change during the period of observation in the general death rate of persons 40 years and over, the great reduction in the death rates from indefinite causes and senility must have been effected by a gradual redistribution of deaths formerly reported under these rubrics to other more precise classifications.

The observed reduction in the reported deaths from these causes is thus good testimony to increasing accuracy and precision in death certification. If the 1920 rate for deaths from ill defined causes and for senility had prevailed in 1900, instead of the 15,568 deaths reported under these rubrics, only 2,077 deaths would have been attributed to these causes in the population 40 years and over. For that year, this would leave 13,491 deaths to be redistributed among other more precise classifications. *Here, then, is a source of excess* deaths which, if all assigned to cancer, would much more than obliterate any advances in the cancer death rate.

Of course, there is no justification for any such extreme correction of the cancer death rate, as besides cancer, other diseases, such as *diseases of the circulatory* system, have shown even more dramatic increases than cancer in this age group. However, we must assume that a certain proportion of the deaths certified to formerly as due to ill defined causes and to "old age" were in reality due to cancer. It is of interest to see what adjustment must be made in the cancer death rate if we assign a fair proportion of these deaths to the cancer classification.

Since the number of deaths in persons under 60 reported as due to senility is negligible, we must divide our age group 40 and over into two subgroups, one aged 40-59, and the other, 60 and over.

In the first group, in 1900 there were 1,331 deaths reported as due to ill defined causes and senility, as against 152 in 1920. Had the 1920 rate prevailed in 1900, only ninety-eight deaths would have been reported as due to these causes, leaving a difference of 1,233 deaths to be distributed among other causes of death. In 1920, the deaths from cancer formed 13.7 per cent. of all deaths in this group with the exception of those due to senility and to ill defined causes. So, if for the sake of liberal adjustment we add 13.7 per cent. of the excess deaths to be redistributed, 169 additional deaths attributable to cancer result, to be added to the 5,043 reported deaths, making a total of 5,212 deaths. The adjusted rate resulting from this addition is 138.5 instead of 134.

As the 1920 rate was 176.7, the difference between this and the adjusted 1900 rate for this group is 38.2 instead of 42.7 points. Since 38.2 is about 89.5 per cent. of 42.7, a little more than 10 per cent. of the increase in the cancer death rate in this group may be ascribed to greater precision in certifying causes of death.

Treating the age group 60 and over in similar fashion, we find that in 1900, 14,237 deaths were reported as due to senility and to ill defined causes. Substituting the 1920 rate of 13.2, only 3,033 deaths would have resulted, leaving 12,188 deaths to be reassigned under more definite classifications. Since, in 1920, 10.6 per cent. of all deaths in this age group (except those due to senility and to ill defined causes) were due to cancer, 10.6 per cent. of 12,188 gives 1,292 deaths to be added to the 6,220 reported cancer deaths. This gives an adjusted rate of 484.6, as compared with the observed rate of 401.3. The differences between the reported and adjusted 1900 rate and the 1920 rate are 253.9 and 170.6, respectively, corresponding to percentage increases of 63.3 and 35.2.

Since 170.6 is about 67 per cent. of 253.9, 33 per cent. of the observed increase could be explained by transfer to the cancer column of deaths in which the cause was erroneously reported as due to senility or other ill defined causes.

In making this correction, it has been assumed that the excess deaths are assigned to other causes in the proportion these have to the total deaths from all causes in each age group, the 1920 percentage of cancer, the highest observed, being used in this case.

Willcox believes that this method of correction tends to underestimate rather than overestimate the transfer, since the modern tendency is away from vague and indefinite to specific and definite causes of death. Hence, he believes that there has been a greater tendency to certify cancer, with the increase in precision of death certification, than would be indicated by its chance frequency as a cause of death.

It is believed, however, that the method of correction is liberal for the following reasons: In the first place, the 1920 percentage that cancer formed of all deaths is used, thus representing the more nearly stabilized practices of present day death certification. The circumstance is ignored that, if cancer has actually increased, there would naturally be today a higher percentage of cancer among all deaths than formerly.

Again, we include in the cancer deaths a large number of deaths due to cancer of accessible sites, such as the buccal cavity, breast, female genital organs and skin, about which, as is conceded, errors, so far as death certification is concerned, hardly ever occur. In fact, with regard to such types of cancer, it may be concluded that throughout the entire period of observation the tendency to report a vague and indefinite, rather than a specific, cause of death was negligible as compared to other varieties of cancer, and very much less than for other causes of death, such as organic diseases of the heart.

There is still another correction that must be discussed. While the cancer death rate has been increasing, that due to nonmalignant tumors has been falling. In 1900, the rate was a little over 12 per hundred thousand for persons 40 years and over, while in 1920 it was but 7.9. Had the latter rate prevailed in 1900, only 420 instead of 646 deaths would have occurred. This gives a difference of 226 deaths reported as nonmalignant but which, presumably, were due to cancer.

Let us now review briefly how matters stand as to the various adjustments that should be made in this group.

Table 4.—*Redistribution*

Age Group	Transfers to Cancer From	Deaths
40-59 years	"Ill defined" deaths	169
60 —	"Ill defined" deaths and senility	1,292
40 years —	Nonmalignant to malignant tumors	226
		1,687

In regard to changing age distribution, it has already been pointed out that if the population aged 40 and over were redistributed according to the age constitution prevailing in 1900, the 1920 rate of 311.4 should be somewhat increased to 316.8. This rate is greater than the observed rate of 212.0 in 1900 by 49.5 per cent. In 1900 there were reported 11,263 cancer deaths in this group. As a result of the previous computations, the number of deaths given in Table 4 should be added to this figure.

This total, added to the 11,263 already reported, gives 12,950 deaths. This yields a death rate per hundred thousand of 243.9, 31.9 points higher than the observed rate of 212.0.

This adjusted rate is less than the 1920 rate adjusted for change in age distribution of 316.8 by 72.9 points. This corresponds to an increase of 29.9 instead of 49.5 per cent. As 72.9 is about 69.5 per cent. of 104.8 (the difference between the 1920 adjusted and the 1900 observed rate), a little more than 30 per cent. of the increase in this age group could be attributed to greater precision and more accuracy in returning the causes of death.

One aspect that must be considered in connection with the increase in cancer mortality is the extent to which general improvement in diagnostic skill may have contributed to such increase. It must, however, be borne in mind that here we are dealing, not with improvement in the early diagnosis of cancer, when there is still hope of arresting the disease, but with the diagnosis of cancer in its terminal stages.

From this standpoint, and especially in the recognition of cancers of the accessible sites, such as the buccal cavity, the breast and the female genital organs, it is doubtful whether the physicians of 1900 were much, if at all, inferior to their brethren of today.

Yet the death rates of some of these cancers of accessible sites, such as the buccal cavity, the breast and the uterus, show a higher percentage increase than that of an inaccessible site, such as cancer of the stomach and liver.

This is shown by the following percentage increase in the rates: cancer of the buccal cavity, 103.4 per cent.; cancer of the uterus, 64.7 per cent.; cancer of the breast, 82.6 per cent.; cancer of the stomach and liver, 50.7 per cent.

It is true that the disproportionate increase in the death rate from cancer of the peritoneum, intestine and rectum would indicate some improvement in the diagnosis of these types of cancer. This evidence is somewhat weakened by the failure of skin cancer to advance since about 1910.

While no completely satisfactory explanation is at hand, we may suppose here that the superficial situation, generally lower malignancy, greater amenability both to surgical removal and to radiotherapy, and the much higher average age at death may be cited as factors that would explain the failure of skin cancers to advance *pari passu* with the other varieties.

Before concluding, let me refer briefly to one other point. This is the probable effect on the cancer death rate of the changes in racial stock effected by immigration during this period. It is well known that the character of immigration has been changing. Formerly, immigrants originated mainly from northern and western Europe. Now they come mainly from southern and eastern Europe. The races contributing to the "old" immigration have been the English, Celtic, Teutonic and Scandinavian. The predominant racial stocks in the "new" immigration are Italian and Slavic.

Since the reported cancer death rates in the latter stocks, so far as statistics are available, seem lower, and certainly are no higher than in the racial stock that originated the old immigration, we may assume that the changes in racial stock due to immigration had, if anything, a tendency to lower rather than to raise the prevailing cancer death rates.

CONCLUSIONS

1. There has been a pronounced increase in the observed death rate from cancer in persons 40 years and over in that part of the United States known as the ten original registration states.

2. Part of this increase (about 30 per cent.) is due to greater precision and accuracy in the filling out of death returns.

3. The remainder, however, is an actual increase in the mortality resulting in a death rate between 25 and 30 per cent. higher than it was twenty-one years ago.

ABSTRACT OF DISCUSSION

Frederick L. Hoffman, Newark, N. J.: For many years cancer has been on the increase, and no arguments against this conclusion have stood the test of qualified analysis. Unquestionably, the data are always more or less defective in matters of degree, but this argument can be made against statistics of every nature. When we commenced our agitation in favor of cancer control, the actual recorded mortality from cancer was 75,000, whereas at present it is 110,000. The terminal diagnosis in cancer, at least of the external organs and parts, was probably as good thirty years ago as it is now. Physicians of the past generation were much better observers in matters of detail than physicians of today, who place too much reliance on instruments of precision, tests or mechanical examinations, which cannot properly replace the trained eye, ear and hands. I have little patience with the argument that the physicians of the past were ignorant of obvious cancer occurrences terminating in death in a sufficient number of cases to impair seriously the statistics of the past. Cancer, in brief, and as shown by Dr. Schereschewsky, is unquestionably seriously on the increase. Last year the rate for American cities was the highest on record, while for certain cities the rates are decidedly alarming; but the root of the matter will not be effectively dealt with until the rate is broken up into its component parts and we deal separately with the different forms and types of cancer that affect the human body. The cancer problem is unquestionably the greatest problem before the medical profession at the present time. It will certainly not be solved by those who spend their time in hair-splitting arguments, chiefly for the purpose of controversy, rather than in aid of the search for cancer facts. The statistical aspects of the cancer problem are extremely complex, burdensome, costly and always difficult, but the outstanding results of statistical research are unquestionably useful contributions to cancer knowledge and aid in the search for a better understanding of the true nature of malignant diseases.

Dr. Frank Smithies, Chicago: I am very glad to hear Dr. Schereschewsky discount the remarks of Wells made in Chicago last year. Wells said to a large audience that the reason cancer was increasing was that, through our efforts toward public health, we are increasing the life of the individual, and, in doing this beneficent thing, we were bringing into the cancer class a great many individuals who otherwise would have died from other causes and who would not have reached the cancer age. I think Dr. Schereschewsky's figures prove that Wells was entirely wrong. I can only speak of cancer of the stomach. I have made an analysis on the greatest number of proved instances of cancer of the stomach (921 operatively demonstrated cases). It is interesting to observe that my figures regarding the "hereditary" incidence of cancer as secured by inquiry from patients, and going back only as far as four generations in any family, was 8.5 per cent. This corresponds within 0.5 per cent. of the incidence of spontaneously arising cancers in mice as shown by Maud Slye. I wonder whether any observations have been made by statisticians respecting the total increase in the population of the world with regard to cancer, particularly with respect to the increase of civilized peoples in the world and the increase of cancer incidence. Cancer apparently is a disease of higher civilization; and since gradually the world is accumulating a greater civilized population, possibly it is true that the figures for cancer increase are only keeping pace with the increase in civilized population. This has always appeared to me as interesting, because, as civilized people live faster, eat more, exercise more and are subject to more trauma than uncivilized folk, their organs are put to a greater stress in shorter time than are the organs in less civilized people. They are functionally put to a stress earlier in life and to a greater stress over the period of middle life than individuals not civilized. Their organs earlier reach functional or anatomic senescence. The decrease in skin cancer might be accounted for, perhaps, because during the last two decades a large emigrant population has learned how to keep itself clean. Very likely increased bathing and use of soap and better care of the skin and surfaces of the body have some effect in reducing irritation and thus reducing the incidence of skin carcinoma.

Prof. I. V. Hiscock, New Haven, Conn.: Dr. Schereschewsky has rendered an important contribution to cancer literature. Two years I studied with Dr. Dublin the trend of cancer mortality in a large group of industrial wage earners of the United States and Canada (129 million years of life exposed to risk), for the years 1911-1922. In general, these figures bear out some of the important findings which Dr. Schereschewsky has elaborated today. It is most illuminating when one divides the causes of cancer deaths into the various groups and studies the course of mortality according to factors of age, sex, race, etc. The greatest increase for this industrial group has occurred among the males, and at the older age periods as Dr. Schereschewsky has found for the general population. One of the largest increases is noted from cancers of the peritoneum, intestines and rectum. Cancer of the skin showed a very slight decrease, if anything, while deaths from cancer of the breast showed only very slight increases. A fairly recent note in the *Statistical Bulletin*, Metropolitan Life Insurance Company, calls attention to the importance of the cancers that occurred among the younger people, and I think this group of cancers, as well as those of "other organs and parts not specified," might be studied a great deal more extensively than we have in the past. This could be accomplished by subdividing the cancers of the various organs and parts covered by this important residual group into separate units, for statistical study.

Dr. J. W. Schereschewsky, Boston: The question of the hereditary factor in cancer is, of course, one of great importance. Because of the lack of available data it is not possible at present for any one, so far as I know, to make a thoroughgoing study of this factor in the human race. The hereditary studies that are found in the literature are not sufficiently extensive to give mass value or to exclude the operation of the laws of chance. So far as laboratory observations are concerned, the influence of the hereditary factor appears to be pronounced. In conformity with the experience of Mr. Hoffman and others, the results of this study, which was entered on in an unbiased way, show that the increase in cancer mortality is an actuality. Since this increase is here we must look to factors in our complex civilization which have brought about this great increase in cancer mortality. This means that we must redouble our assiduity along epidemiologic lines with the hope that tomorrow or next year or in the next decade, the solution of the baffling etiology of cancer will be within our grasp. I cannot believe that this increase in cancer mortality is going to continue indefinitely. Like all biologic phenomena, these processes tend to reach a state of equilibrium sooner or later. After the forces that have raised the human race to a new and higher level of susceptibility have spent themselves, I expect to see no further great increase in the cancer death rate.

SCARLET FEVER

ETIOLOGY, PREVENTION BY IMMUNIZATION, AND ANTITOXIC TREATMENT [*]

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NEW YORK

The etiology of scarlet fever has been under active investigation for many years. Loeffler,[1] in 1884, and later other bacteriologists noted that the hemolytic streptococci were very abundant in the throats of acutely ill scarlet fever patients. Clinicians also noted the fact that in certain cases of wound infection and puerperal fever a scarlet fever-like rash developed. These observations led to the opinion that there was a close relationship between certain strains of hemolytic streptococci and scarlet fever. The majority, however, held that the hemolytic streptococci were merely very important secondary invaders. Repeated attempts by numerous investigators to produce any disease similar to scarlet fever in animals by the inoculation of throat secretion or cultures of hemolytic streptococci obtained from the throats of scarlet fever patients failed. It was therefore necessary to turn to tests on man.

Moser[2] reasoned that, if the streptococcus was the cause of scarlet fever, a curative serum might be produced, and in 1902 published a report of the good therapeutic results obtained by the use of an antiscarlet fever serum produced by the horse after frequently repeated injections had been made of living streptococci together with the broth in which they had developed, so as to get the antigenic value of the organisms as well as of any toxins that might have developed in the broth. The stains of streptococcus used were obtained from a number of toxic cases of scarlet fever.

A Russian investigator, Savchenko,[3] went a step further; he showed, in 1905, that the serum contained both scarlet fever antitoxin and streptococcic bactericidal bodies. He also proved that the filtered broth in which the culture had grown contained a strong toxin. He said:

> Immunizing with the microbes only, it is possible to obtain a very active antimicrobal serum, but not at all antitoxic; vice versa, by immunizing with a toxin, we obtain an antitoxic serum and, therefore, one not acting on the microbes.
>
> In scarlet fever, in which we have severe local infections and at times even general infections, together with the toxemia, we must have in the serum antitoxins as well as germicidal antibodies. Filtrates of our own cultures of streptococci from scarlet fever grown in different combinations of broth proved to be nonpathogenic for rabbits, even in large doses. To conclude from this that there is no poison in the medium would be just as erroneous as to infer that there is no tetanus toxin after we had tried it on chickens, which are insusceptible to it.
>
> It is obvious that cultures grown on 2 per cent. ascitic broth are preferable for toxin production to those grown on sugar broth, even if the organisms are less luxuriant.
>
> The same filtrate, injected under the skin of rabbits in amounts of 5 and even 10 c.c., produced no symptoms except a slight swelling. The filtrate turned out to be just as harmless for other laboratory animals.
>
> These experiments showed that it is possible to obtain a sufficiently strong toxin, but they unfortunately also showed that by means of our laboratory animals it is impossible to gage either the amount of toxin—which is so important for proper immunization—or the amount of antitoxic substances in the serum, which is not less important for curative purposes. For the time being we are compelled to work, so to speak, by "feeling" our way.
>
> As long as the broth cultures were shown to contain toxin, it appeared most proper to immunize horses with living cultures with the accompanying toxic broth, because in this way both antitoxic and antimicrobal substances should be obtained.

After reading the paper of Savchenko, no one can doubt that he produced by the filtrate a true antitoxic serum.

HUMAN IMMUNIZATION AGAINST SCARLET FEVER AND VALUE OF THIS EVIDENCE IN FAVOR OF THE CAUSAL RELATIONSHIP OF STRAINS OF STREPTOCOCCI TO SCARLET FEVER

Gabritschewsky[4] had finished an experimental study on a streptococcic infection of horses in which an appreciable rash developed, and believed he had proved that a vaccine of toxin and dead streptococci was able to develop a moderate degree of immunity. He then turned to the question of utilizing a streptococcus vaccine made from the toxin and the cells of streptococci obtained from scarlet fever. His vaccine was made of bouillon in which the streptococci had grown for four days plus the streptococci themselves. The toxic bouillon containing 3 per cent. by volume of the streptococci was heated to 60 C. to kill the streptococci, and then preserved with 0.5 per cent. phenol (carbolic acid). Three doses were given subcutaneously one week apart. For infants under 2 years the dose was 0.25 c.c.; for children between 2 and 10 years, 0.5 c.c., and for those over 10 years, 1 c.c. The results in children were most important. Langowoi, using his vaccine, found that of 120 children inoculated, 13.3 per cent. developed a fine scarlet fever-like exanthem which was not followed by desquamation. A few developed a sore throat and strawberry tongue, and fewer still vomiting. He states that these symptoms are those which are characteristic of scarlet fever, and these results of the vaccination add an extremely important proof "for the specificity of a scarlet fever streptococcus and its toxin." There is no question that Gabritschewsky considered the bouillon to contain a true toxin, not only from his language, but also because he was in contact with Savchenko, and their articles appear together a little later in the same Russian journal. He found that the second and third injections, although they were twice and four times as large as the first, rarely produced a rash. This he considered as evidence of the rapid development of immunity.

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[*] This study of scarlet fever was aided by a grant of money from the Milbank Memorial Foundation.

[*] Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[*] Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

[1] Loeffler: Arb. a. d. k. Gesundh., 1884.

[2] Moser: Wien. [illegible] 15: [illegible]3, 1902.

[3] Savchenko: Ru [illegible] p. 797.

[4] Gabritschewsky [illegible] I, Orig. 41; Berl. klin. Wchnschr. 44: 556 [illegible].

Gabritschewsky,[4] in 1907, gives further evidence in favor of vaccination. Of 248 children receiving injections of the vaccine, Nikitin noted the rash in 17.3 per cent. In six he noted a generalized rash, vomiting, a strawberry tongue and an angina. In seven cases, the lymph glands were slightly swollen; in ten cases, albumin appeared in the urine for a day. In one case there was an acute nephritis, which ended in recovery. Twenty-six children who had previously had scarlet fever showed either no reaction or only a slight local swelling. A group of children tested during their fourth week of convalescence showed a greater percentage of reactions than those who had been convalescent for a long time. At Gabritschewsky's suggestion, Langowoi vaccinated twenty children with a vaccine made in the same way as the scarlet fever vaccine from the streptococcus of erysipelas. None of these developed a rash. These cases are too few to prove that the result would have been the same if a larger number had been vaccinated, but they are suggestive of the specific character of the scarlet fever toxin Gabritschewsky closes his article with five conclusions, of which I quote the last two:

> The fact that a scarlet streptococcus vaccine (toxin and culture) is able to produce a scarlatiniform rash and the other symptoms of scarlet fever is a decisive proof in favor of accepting a streptococcus as the specific cause of scarlet fever.
>
> This decisive proof adds a scientific reason for the use of Moser's serum and my vaccine.

Gabritschewsky's death prevented him from following up the practical results of his vaccine. The following statement by Polotevkova[5] is one of several encouraging reports:

> A severe outbreak of scarlet fever took place in my district, with 1,200 cases of the disease. Not only children, but also adults between 20 and 50 years of age were among the sick The form of the disease was also severe, very often involving suppurative affections of the mouth, nose and upper respiratory tract. Owing to the extreme poverty of the peasants of this district, where very often milk could not be obtained for the sick, the only hope was in the preventive immunization In short, the results were such that in the villages in which vaccination took place only one or two or no cases at all were observed; in villages in which no vaccination was carried on, the number of sick would reach from six to 175 cases. The author vaccinated her own three children.

Gabritschewsky considered that he had added to the proof already gathered sufficient evidence so that scarlet fever could be considered to be in the same class as diphtheria. The scarlet fever streptococcus produced its toxins in the throat. The absorbed toxins produced the rash, the fever and the other symptoms due to toxemia. The lowered resistance allowed the scarlet fever streptococci or other streptococci to invade distant parts and make the so-called complications. Additional evidence of the causal relationship was the development of a case of scarlet fever by the accidental inoculation in our laboratory of the throat of one of the assistants by a culture of several strains of streptococci including a scarlet fever strain. A typical case[6] of scarlet fever developed, but attempts to reproduce the disease in animals with the culture failed.

In 1918, Schultz and Charlton[7] described the reaction known by their name. When 1 c.c. of a diluted convalescent serum is injected intracutaneously into the reddened skin of a scarlet fever patient, a blanching occurs in an area several centimeters in diameter. In December, 1923, Mair[8] published further results and concluded that this reaction is due to the action of an antitoxin on the scarlet fever specific toxin. This brings us to the discoveries of the Dicks and of Dochez. In spite of the proof, which was largely unknown to most workers, the majority still believed that the hemolytic streptococcus found in scarlet fever was only an important complicating infection. In October, 1923, the Dicks[9] inoculated five volunteers who had lived in the country, with a streptococcus culture from a case of scarlet fever. One developed a typical case of moderate scarlet fever. The throats of five others were inoculated with the filtrate of a broth culture. None of these developed the disease, but when the same persons were inoculated with the streptococcus, one developed it. This proved that the infection agent was not a filtrable virus attached to the streptococci. It was found by them that the streptococci isolated by them from scarlet fever differed from one another in the ability to ferment mannite. The first two cases had been caused by an organism that fermented mannite. The Dicks then tried out the effect in the human skin of the toxin discovered by Gabritschewsky and Savchenko. They found that weak solutions of the toxin may be employed in skin tests to determine suscepti-

Table 1—*The Dick Test at Different Age Groups (Zingher)*

Age	Total Tested	Per Cent Dick Positive
0- 6 months	29	44 8
6 12 months	52	65 3
1- 2 years	233	71 6
2- 3 years	204	64 2
3- 4 years	241	60 5
4- 5 years	264	48 4
5-10 years	1,955	33 6
10-15 years	2,965	22 8
15 20 years	981	16 8
20 years up	776	14 4
Total	7,700	29 2

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[5] Polotevkova. Russk Vrach 11: 1183, 1921

[illegible] s, Jr · Nicoll, Matthias, Jr., and Pratt, Josephine Scarlatina in Monkeys, Arch. Int. Med 13:

[7] Schultz and Charlton: *Ztschr f. Kinderh.* **17:** *328, 1918.*

[8] Mair, W Lancet **2:** 1390 (Dec. *29*) *1923*

[9] Dick, G F, and Dick, Gladys H.: Experimental Scarlet Fever, J A M A **81:** 1166 (Oct. 6) 1923.

bility to scarlet fever. The toxin is first carefully standardized and diluted so that 0.1 c.c. represents a skin test dose. The test consists of an intradermal injection of exactly 0.1 c.c. of the skin test dilution on the flexor surface of the forearm. The reaction is observed at the end of twenty-four hours. An area of reddening 2 cm. in diameter indicates marked susceptibility; 1 cm. in diameter, some degree of susceptibility to scarlet fever.

Table 3.—*Immunizing Results of Three Injections of 300, 500 and 1,000 Skin Test Doses of Scarlet Fever Toxin Given at Intervals of One Week*

Before Injection Reaction to Dick Test	Results of Retest: Two Weeks After Last Injection	Four Weeks After First Injection
	2 = 2 +	
	2 = $+^1$	50 per cent. immune
10 + + or + $+^1$	1 = +	
(Strong reactors)	5 = −	50 per cent. still susceptible
	4 = +	68.5 per cent. immune
35 $+^1$ or +	7 = ±	20 per cent. doubtful
(Moderate reactors)	24 = −	11.5 per cent. probably susceptible

Results with Injections of Double the Foregoing Amounts

Before Injection	Two Weeks After First Injection	Four Weeks After First and Two Weeks After Third Injections
12 + + or + $+^1$	3 = 2 +	2 = $+^1$
(Strong reactors)	3 = + Week	1 = ±
	2 = ±	9 = −
	3 = −	
	1 not tested	
	27 per cent. immune	75 per cent. immune, 16 per cent. not immune, 8 per cent. doubtful

+ + Indicates a Dick reaction of 2 cm. in diameter and + of 1 cm.
$+^1$ Indicates more than + and ± less than +.

In a series of skin tests, reported in January, 1923, the Dicks found a positive or strongly positive reaction in 41.6 per cent. of the persons who gave no history of scarlet fever, and negative or only slightly positive reactions in all the convalescent fever patients tested. Zingher's observations fully corroborate these findings and show that the results in age groups from the Dick test were very similar to the results from the Schick test.

This skin test was developed before they attempted to produce experimental scarlet fever with the type of streptococcus that does not ferment mannite. In selecting their volunteers for inoculation with this type of streptococcus, they chose one with a negative skin reaction, and one with a positive reaction. The two volunteers were inoculated with the same culture. The one with a negative skin test remained well, while the volunteer who had shown a positive test developed scarlet fever.

In the instances in which they had an opportunity to observe the skin reaction before and after an attack of scarlet fever, it was positive before the attack, and negative during convalescence. It is now known that there are about 10 per cent. of exceptions to that rule.

These authors [10] also found that if persons with positive skin tests received convalescent scarlet fever serum intramuscularly, their skin tests became negative. With more definite doses than Gabritschewsky used they then attempted to immunize persons against scarlet fever and utilize later their skin test to determine the development of antitoxic immunity. They found that, by proper dosage, they were able to immunize persons with positive skin tests so that their skin tests became negative and they did not contract scarlet fever on exposure. They report a series of 125 persons exposed to scarlet fever. In this series, sixty-three showed negative skin reactions, and were not immunized. Fifty-two had positive skin tests, and were immunized with toxin. None of these persons contracted scarlet fever. They emphasize the importance of carrying the immunization to the point of a negative skin test. By the employment of three graded doses of toxin, they have been able to eliminate severe reactions.

While the Dicks were adding to the proof as to the causal relationship of certain strains of streptococci to scarlet fever, Dochez [11] was developing an antitoxic serum through a method developed by himself of injecting subcutaneously into animals masses of nutrient agar infected with scarlet fever streptococci. These injections, repeated from time to time in increasing amounts during from six to eight months, were found to develop a potent antitoxin. The serum of horses that had been subjected to such injections was found to give the Schultz-Charlton test, even when the serum had been diluted several thousand times. The serum was used in cases in New Haven and in New York, and the same results were regularly obtained as had been formerly obtained with unstandardized serum by Moser and Savchenko; but now the potency of the serum was established by the striking results with the Schultz-Charlton reaction. These were a demonstration to all that antitoxin was truly present.

Shortly after Dochez announced his serum, the Dicks made a report on the production of antitoxin by the toxic filtrate standardized by their method. Whether the Dochez method or the various modifications of the toxin with or without killed or living streptococci will finally be adopted remains for further comparative tests to decide. This will depend largely on the value of an antimicrobal substance in the serum. The results with the Dochez serum or the Dick serum agree absolutely with the reports of the use of the Moser serum.

ACTIVE IMMUNIZATION

Earlier in this paper I gave the work of Gabritschewsky and his followers. In the light of the Dicks' researches and the rashes that developed, it can be estimated that the Russian infants received about 1,000, 2,000 and 4,000 skin test doses and older children 2,000, 4,000 and 8,000, or perhaps double that amount. With the Dick test, the dosage can be standardized and the immunity results determined by retesting from time to time. The scarlet fever toxin is much less injurious to the local tissues than the diphtheria toxin, so that there is no need of adding antitoxin to it or of changing

Table 4.—*Results in Dick Positive Children Three and One-Half Months After Receiving Three Immunizing Injections of Approximately 1,000, 2,000 and 4,000 Skin Doses*

	Reaction Three and One-Half Months Later	
11 + + or + $+^1$	1 = +	63 per cent. immune
(Strongly positive)	3 = ±	27 per cent. doubtful
	7 = −	9 per cent. probably susceptible
10 + or $+^1$	1 = ±	90 per cent. immune
(Moderate reactors)	*1 = pseudo	10 per cent. doubtful
	8 = −	
Total 21 cases	1 = +	76 per cent. immune
	4 = ±	19 per cent. doubtful
(Strong and moderate reactors)	15 = −	4 per cent. moderately susceptible
	1 = pseudo negative	

* Gave + reaction with and without mixture with a sufficient quantity of convalescent serum to neutralize the toxin.

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[10] Dick, G. F., and Dick, Gladys H.: The Prevention of Scarlet Fever, J. A. M. A. 83: 84 (July 12) 1924.

[11] Dochez: Proc. Soc. Exper. Biol. & Med. 4: 184 (Jan.) 1924.

it by formaldehyd. Yet, as the Dicks state, such chemical modification resulting in a decreased toxicity or toxoid is desirable, if it can be demonstrated that it accomplishes immunization with fewer doses or in a shorter time. The most suitable dose of toxin varies with conditions. If scarlet fever is prevalent, it is very desirable not to give sufficient toxin to make a rash in any of the very susceptible children, for there is no certain way of determining in such a case whether it is a case of light scarlet fever or of a toxin rash. Even if cultures are made, it is possible that streptococci which produce the scarlet fever toxin will be present, and yet the case will be due to a toxic rash. If, however, no scarlet fever is in the neighborhood, a slight scarlet rash is of no importance and larger doses can be given. The Dicks give an interesting summary of the relation of the total skin doses to the immunity results.

They advise skin doses for the first 500, for the second 1,500, and a considerably larger dose for the third.

Original Investigations.—Tables 3, 4, 5, 6 and 7 show the results in our tests following the injection of from 600 to 10,500 skin doses. The tests in these tables, with the exception of the one by Zingher, were made by Schroder and read by her, Williams and myself.

TABLE 5.—*Results of Five Immunizing Injections at the End of Three and One-Half Months Approximately 500, 1,000, 2,000, 3,000 and 4,000 Skin Test Doses*

	After Three and One-Half Months	
32 + + or + +^{1}	1 = +	81 per cent. immune
Strongly positive cases	5 = ±	= 17 per cent. probably immune
	23 = −	= 2 per cent. probably susceptible
	*3 + ± negative pseudo	
36 + or +^{1}	34 = −	
Moderate reactors	*1 = + negative pseudo	100 per cent. immune
	*2 = ± negative pseudo	
69 + to + +^{1}	1 = +	91 per cent. immune
All positive reactors	5 = ±	7 per cent. probably immune
	57 = −	1 per cent. probably susceptible
	1 = + negative pseudo	
	5 = ± negative pseudo	

* 1 + and * 5 ± are considered negative pseudo reactions because of an equal reaction in the control neutralized by convalescent serum.

The persistence of the acquired immunity following injections remains in doubt. With small injections, such as in the cases recorded in Table 7, many of the originally very positive cases have after a year relapsed, while the originally moderately positive cases have generally continued to hold their immunity or to increase it.

With much larger injections, such as those recorded in Tables 4 and 5, the immunity response is so much greater that it is hoped that the marked positive cases will not only develop immunity but hold it for a period of years.

We note in these tables that the moderately reacting cases develop complete immunity much more readily than the strongly reacting cases; again, that the response is quicker than after diphtheria toxin-antitoxin or toxoid injections. This corroborates the views of Gabritschewsky and the statements of the Dicks that immunity develops in many within one or two weeks.

The results of a second series of injections in those who have not responded to the first series have been excellent.

The persistence of a negative Dick reaction in those found to be negative: Observations on several thousand children by Zingher and Schroder at different intervals of time up to thirteen months have shown that a naturally acquired immunity is usually persistent for at least one year. Only about 2 per cent. of those originally negative have been found to change. It is fair to assume, therefore, that as in the case of naturally acquired immunity to diphtheria, the immunity to scarlet fever naturally acquired is apt to remain. This finding, which is in accord with the findings of the Dicks, encourages us to hope that, with larger and perhaps more numerous doses, even the very positive cases may acquire such a high degree of immunity that it will last for at least a few years. We already have the knowledge that these immunizing injections are very useful in stopping an outbreak of scarlet fever.

TABLE 6.—*Immunity Results After Four Weeks with Three Injections of Scarlet Fever Toxin (Dick Test)—1,200 Skin Test Doses in All (Zingher)* *

	Dick Retest After from Four to Five Weeks						
			Dick Positive and Combined			Dick Negative and Pseudo	
Institution	Per Cent. Positive Dick at Original Test	Total Retested	Number Positive As in Original Test	Number Less Strongly Positive	Per Cent. Less Strongly Positive	Number	Per Cent.
Hebrew Orphan Asylum	29.2	143	19	20	14.0	104	72.7
New York Orphanage	44.4	91	10	36	39.5	45	49.4
Leak and Watts Home..	22.0	40	12	10	25.0	18	45 0
Total		274	41	66	24.0	167	61.0

* Doses given: under 12 years, 200, 500 and 500 skin test doses at weekly intervals; over 12 years, 200, 500 and 1,000 skin test doses at weekly intervals.

THE SERUM TREATMENT OF SCARLET FEVER AS OBSERVED AT THE WILLARD PARKER HOSPITAL

Scarlet fever antitoxin was first administered by us in January, 1924. This was made possible through a supply of serum by Dr. Dochez. The first serum was only moderately potent, and in the doses given by the intramuscular method, the results though good were not striking. In January, 1925, it was decided to give it to alternate patients, and in severe cases to give it intravenously. The antitoxin most used was our own preparation obtained from two horses that had received increasing toxin injections for nine months and more; but in about one fourth of the cases we used a new preparation of the serum sent us by Dochez. The result of the intravenous injection was so striking that the medical board decided in March, 1925, to give all patients having a rash and a temperature of 101 F. or higher antitoxin and to give it to alternate patients having a temperature lower than 101. It was given intravenously in all severe cases.

TABLE 7.—*Results of Injecting 100, 200 and 400 Skin Test Doses as Shown by Retest Five and Thirteen Months Afterwards at St. Dominicks*

	Five Months After	Per Ct.	Thirteen Months After	Per Ct.
One hundred positive cases	+ + = 0		+ + = 20	
of St. Dominicsk Test	+ = 8	= 9.8	+ = 9	susceptible
by Dr. Schroder	+ = 27	= 33.3	± = 14	doubtful
	± and − = 46	= 56.8	± or − = 57	immune
	Total 81		Total 100	

The antitoxin serum was given by Dr. Mildred McBride, the assistant resident physician who was in charge of the scarlet fever service at the Willard Parker Hospital. The attending physician on duty and I watched with her the effects of the treatment. The potency of the antitoxic serum was tested either by the Schultz-Charlton blanching test or by the more accurate Dick neutralization tests of the toxin. The potency ranged from 50 to 150 units per cubic centimeter; that is, 1 c.c. of the serum neutralized between 5,000 and 15,000 Dick test skin doses of toxin.

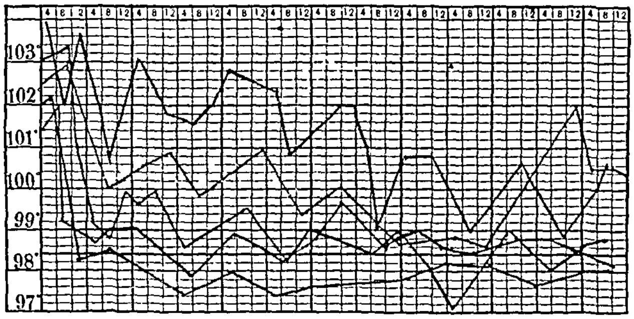

Chart 2.—Temperature curves in five uncomplicated cases after an intramuscular injection of antitoxin

Most of the serum was not refined. About fifty patients however, received the refined antitoxic globulin solution. The therapeutic results were alike, but rashes occurred in about 60 per cent. after the injection of the unrefined serum, and in only about 30 per cent. after injection of the refined. The rashes and other symptoms of serum disease that did occur were more severe with the unrefined. No serious after-effects occurred in any case, but the serum sickness in some was very annoying. The dosage was determined by much the same principles that govern the dosage of diphtheria antitoxin. A sufficient dose should be given at the earliest possible moment. An amount should be given in the first dose to make and keep the fluids of the body antitoxic. If, however, the temperature rises after the drop, a second injection should be given. The size of the dose is influenced by the weight of the individual and the severity of the case. Whether a late case in which there is still a marked rash should be treated with larger doses than an early case of equal severity is in our belief doubtful and remains still a matter for further investigation. Intravenous injections of sufficient size give the most striking results. The fluids of the body become quickly antitoxic, as shown by the Dick test. This, when done even an hour or two afterward, is always negative, if a sufficient dose has been given, and remains negative if done later in the disease.

The results from sufficiently large intramuscular injections are certain, but they develop more slowly. The Dick test is positive for from six to twelve hours after an intramuscular injection. It then becomes negative.

The results as noted at the bedside in the majority of patients are very striking. The higher the temperature and the more toxic the case, the more striking will be the results if the serum is given very early in the disease. After an intravenous injection in an early uncomplicated case, the patient, as a rule, finds within a few hours that the throat is less sore, the mind clears, vomiting ceases, the appetite returns, and the temperature and pulse begin to fall. Within from six to eight hours, a delirious and a very sick patient is often convalescent. With a larger dose given intramuscularly the same results follow, but more slowly. With insufficient dosage there is a less rapid improvement, and the toxic symptoms may return. Our results were practically identical with those reported by Blake[12] and Birkhaug.[13]

The following two cases showed favorable results after intramuscular injection in the first and intravenous injection in the second:

Case 1.—G. C., a boy, aged 7, was sick two days with headache and vomiting. A rash developed on the morning of the 23d. On admission in the afternoon, the temperature was 103 F.; pulse rate, 150; rash marked, and throat inflamed. The Dick test made on admission was positive. The severity was from moderate to severe. The patient was given intramuscularly 40 c.c. (about 3,200 units) of Dochez' antiscarlatinal serum. On the 24th, the rash was greatly lessened; the Dick test made in the morning was negative, and the temperature was 101 F. in the morning and 100 F. in the afternoon. On the 25th, the rash was gone; the temperature, 99.6 F. The patient made an eventful recovery (Chart 1).

Case 2.—A. K., a man, aged 32, who had a sore throat on the 17th, with a rash appearing on the 19th, was admitted early in the afternoon on the 20th. The temperature was 102 F. and rose to 104 F.; the pulse rate was 130. The throat was inflamed. Adenitis was present, and the patient was fairly toxic. He received on admission 2,400 units of antitoxic serum intravenously. Within two hours he felt improvement. At the end of six hours, the temperature had fallen to 98.8 F., the rash had faded and the patient felt almost well. Convalescence was uncomplicated (Chart 1).

Chart 2 gives the temperatures of five patients who received intramuscular injections. The drop in temperature is comparatively slow. Two of these patients received insufficient amounts of antitoxin.

Chart 4 gives the composite temperature curves of twenty-five severe, twenty-five moderate and twenty-five light cases of scarlet fever treated with serum during the first three days of the disease and an equal number without.

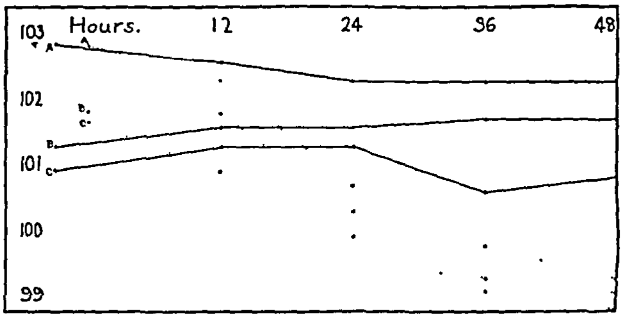

Chart 4.—Average temperatures of seventy five patients treated with serum and seventy five patients treated without serum. solid line, patients treated without serum; dotted line, patients treated with serum. There were twenty five cases of each. *A*, severe, *B*, moderate; *C*, mild.

Complications.—The antitoxin has little effect on complications, such as infection in the tonsils, in the middle ear, in the mastoid, in glands of the neck or in the endocardium, when they have already developed; but before they have developed the antitoxin appears to be of service in preventing their occurrence. This is probably due to the raising of the resistance of the local tissues and of the body as a whole so as frequently to prevent or restrict the invasion of the body by the streptococci. These streptococci may be those producing the

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12. Blake, F G Boston M & S J **191:** 43 47 (July 10) 1924.
13 Birkhaug Bull Johns Hopkins Hosp **36,** No 2, p. 134.

scarlet fever or other varieties. An interesting case was that of a woman sick with toxic scarlet fever complicated by severe erysipelas. The delirium vanished, the vomiting ceased, the temperature was lowered and the rash faded, but the erysipelas ran its usual course. Table 8, which shows the complications developing in seventy-five cases that were treated and in seventy-five that were untreated, indicates a favorable influence of the antitoxin in preventing complications. As long as the rash remains, antitoxin is indicated.

The cases in Table 8 are not strictly comparable, since the severe and moderate cases which were not treated with serum are taken from 1924, while the serum-treated cases occurred in 1925. The diagnosis of nephritis is based mostly on the urine examinations and is probably not wholly accurate. The kidney complications, on the whole, are seen to be decidedly less in the cases treated with antitoxin early, but the other complications are about the same.

Reduction in Mortality.—During the year 1924, when scarlet fever was very light, 569 patients with scarlet fever were admitted to the hospital. About forty of these received scarlet fever antitoxin. The mortality among the 569 patients was 2.8 per cent. During April and May of this year, when all patients with cases of any severity and with a rash were receiving serum, there were 220 admissions. Of these, six patients, or a percentage of 2.7, died.

These figures, considered without a knowledge of the cases, would be very misleading; but they cause one to wonder what proportion of the 150 or more deaths from scarlet fever which occur yearly in New York can be eliminated by the use of serum. In three of the six fatal cases the patients were admitted so late that they were absolutely unsuitable for antitoxin, but in three of them they were admitted on the third day. The histories of these six fatal cases are as follows:

Case 3.—A child, aged 11, admitted thirty-eight days after the development of scarlet fever, showed symptoms of meningitis. Death occurred three weeks later. Necropsy showed several small brain abscesses.

Case 4.—A child, aged 7, admitted on the ninth day of disease, with double otitis media, septicemia and signs of endocarditis, died in three days.

Case 5.—A man, aged 35, admitted in the afternoon on the sixth day of the disease, with an intense rash still present, and a temperature of 104.8 F., received 60 c.c. of Dochez serum intravenously (about 5,000 units). The temperature dropped within six hours to 99.5 but rose the following afternoon, when he died. Necropsy showed purulent bronchitis and toxic changes.

Case 6.—A patient, aged 23, ill three days, with a marked rash, marked pharyngitis with grayish exudate and a temperature of 103.6 F., received 30 c.c. of serum intravenously (about 1,800 units). Complete anuria was present during the first thirty-six hours. The temperature dropped to 99 in eight hours following the administration of the serum, but rose again. The rash remained pronounced for three days. The patient died on the fourth day after admission.

Case 7.—A patient, aged 21, following a kidney operation at another hospital, developed scarlet fever, and was sick three days before admission. The patient appeared toxic with a generalized hemorrhagic rash. The temperature was 103 F. The patient was given 30 c.c. of serum (about 2,000 units) intravenously. The temperature dropped 4 degrees in eight hours, but rose in the afternoon just before death. The rash remained, but was somewhat faded.

Case 8.—J. M., aged 3½ years, was taken ill with vomiting, May 10, developed a rash on the 12th, and was admitted on the 13th, with a temperature of 104.8 F., a generalized hemorrhagic rash and an intense pharyngitis with exudate on the tonsils. Several hours after admission, 30 c.c. of antitoxic serum (about 2,400 units) was given intravenously. The temperature dropped to 100 F., but rose to 102 in afternoon. Another 40 c.c. of serum was given intravenously. The temperature dropped to 101, but rose in the evening to 103 and continued between 101 and 103 until death, May 20. The rash did not fade until the 19th. Necropsy revealed an ulcerative inflammation of the mouth, esophagus and stomach.

In the last three of the six fatal cases, the serum was given about as quickly as would generally be possible. Nevertheless, the patients responded only temporarily and inadequately to the antitoxic serum. It is possible that if the serum had been given immediately after the development of the rash, a better result might have been obtained or perhaps much larger or repeated doses of antitoxin might have done more good. There is also the possibility that some of the cases presenting septic rashes are not ordinary scarlet fever and are due to streptococci that differ in the type of their toxins from those produced by the ordinary strains. We have evidence of such difference, but unfortunately we did not isolate and test the streptococci from these cases for their toxins.

Table 8.—*Complications Developing in Scarlet Fever in Seventy-Five Cases Untreated with Serum and in Seventy-Five Early Cases Treated with Serum*

	Nephritis	Otitis	Adenitis	Arthritis	Mastoiditis
Twenty-Five Severe Cases:					
Without serum..	9	12	8	9	5
With serum......	2	6	11	5	3
Twenty-Five Moderate Cases:					
Without serum..	9	8	8	8	0
With serum......	0	7	11	4	0
Twenty-Five Mild Cases:					
Without serum..	4	0	8	3	0
With serum......	0	4	6	2	0

CONCLUSIONS ON THE THERAPEUTIC VALUE OF ANTITOXIN

The antiscarlatinal serum produced by Moser and Savchenko produced the same therapeutic results as that now produced by the Dochez method or by the subcutaneous injection of known doses of toxin. The value of the earlier products was greatly handicapped by the lack of any means such as the Schultz-Charlton and Dick methods for estimating their antitoxic potency. Because of this lack of knowledge, serum weak in antitoxin was undoubtedly frequently used with disappointing results.

The antitoxic serum should be given in sufficient amount as early in the disease as possible. When thus given, the results in most cases are strikingly favorable. The early use of antitoxin probably frequently prevents the development of complications.

Antitoxin is useless after the rash has disappeared and has no effect on the later septic complications.

In moderate cases it should be given intramuscularly. In severe or toxic cases it should be given intravenously. As a rule, a single dose of sufficient size is enough, but in severe cases in which the symptoms return, a second dose in from twelve to twenty-four hours is often desirable. It is too early to state whether the serum should be given in very mild cases, since the serum sickness is often more annoying than the scarlet fever.

The refined antitoxic serum produces fewer and less severe rashes than the unrefined, and should in time be the only preparation used. A unit should be adopted, so that results from different dosages may be compared. The one suggested at a recent meeting of immunologists in Washington seems to be suitable.

One unit is defined as the amount of antitoxin that neutralizes 100 skin test doses (Dick), as determined by an intracutaneous test in man. A dosage between 2,000 and 10,000 units will probably suffice in the great majority of cases. A few of the failures of antitoxin may be due to the fact that some toxic cases may be due to streptococci that produce other toxins than are neutralized by the antitoxin used. This is an interesting problem for further study. Whether it will be of marked advantage to combine an antimicrobial serum with the antitoxic serum is still doubtful, but merits careful investigation.

Such a serum used alone in the past has given doubtful results, but combined with antitoxin it may add to the benefit produced. There would thus be a return to a serum such as was used by Moser, but with knowledge of the potency in both the bactericidal and the antitoxic properties.

Department of Health.

ABSTRACT OF DISCUSSION

Dr. Abraham Zingher, New York: I shall present my own results with the Dick test and active immunization with scarlatinal toxin before the Section on Pharmacology and Therapeutics. The work covers more than 15,000 Dick tests and 2,000 active immunizations with scarlatinal toxin. I wish to emphasize just now the logical and careful manner in which Dr. Park has given us the historical development of the serum treatment of scarlet fever, which was brought to the attention of the medical profession twenty-five years ago by Moser in Austria and twenty years ago by Sovchenko in Russia. The serums recently described by the Dicks and by Dochez do not differ from these older serums, and if anything are inferior to Moser's serum, which is a polyvalent antibacterial and strongly antitoxic serum. Such a serum will probably be the ideal future therapeutic agent in the treatment of scarlet fever. The clinical results published by Blake and his associates are no better than those so carefully reported by Moser and Escherich in Austrian and German literature in 1903. There is no reason, therefore, why one commercial manufacturing laboratory should claim that the Dochez serum is the best, and another firm, that the Dick serum is the best. The work of Gabritchewsky and his associates, who immunized between 1906 and 1910 more than 50,000 people in Russia with a broth culture of the scarlatinal streptococcus, definitely indicates, as Dr. Park has pointed out, that Gabritchewsky and the other Russian observers fully identified the specific hemolytic streptococcus as the cause of scarlet fever. The careful description given by Gabritchewsky of the rashes and other constitutional symptoms following in 15 per cent. after the injection of his toxin-vaccine shows that he was fully cognizant that the organism produces a soluble toxin similar to the diphtheria toxin. Moreover, he stresses that the rashes were noted because the toxic broth culture was injected into human beings who are susceptible to the specific action of the toxin, while animals appear to be immune to it. The constitutional symptoms following the injections of Gabritchewsky's toxin-vaccine were exactly the same as those described by the Dicks in their publication a year ago. One can therefore state that neither the toxin nor the antitoxic serum is a new discovery. The work of the Dicks consisting of actual production of scarlet fever in human beings and the development of a test along the lines of the Schick test has helped in clearing up the etiology of scarlet fever and will be of value in the future control of the disease. I cannot close my remarks without mentioning one thing that occurred to me when I heard Dr. Lindsley Williams speak just now on the possibilities of establishing a federal health department in this country. In the early part of 1919, while in France, I went to see Dr. Haven Emerson in Tours and said to him that no mention was made in the covenant of the League of Nations, which had just appeared, of an international health bureau to correspond to the proposed international labor bureau. He suggested that it would be useless to look forward to the establishment of such a bureau when, in a country like ours, we have not yet succeeded in grouping our health activities under a federal health department. But hope springs eternal, and today we have a health section of the League of Nations. There is no reason why we should not have in this country a highly efficient federal health agency with a responsible cabinet officer. Beneficial results would not be slow in coming; also we would not have to hear with jealousy from our Canadian friends, as we heard last night, that the government there has ruled that medical men and women are the only ones who can be called today in Canada by the title "doctor," while all the others of the variegated therapeutic fraternity are known as "mechanics."

Dr. William H. Welch, Baltimore: I desire to correct the statement inadvertently made by Dr. Zingher that the covenant of the League of Nations said nothing about protection and promotion of health as one of the obligations and functions of the league. There is an important provision in the covenant covering this question of health, and as should be well known, although apparently it is not, there has been created an active and most useful health section of the league, which is engaged in important activities in the field of international health.

Dr. Matthias Nicoll, Jr., Albany, N. Y.: I would ask a question for my guidance as a health officer, as to whether Dr. Park believes that testing for immunity and conferring of immunity on susceptibles have reached such a point that the state health officers should advocate this as a general procedure and start a campaign to that end in the same way that is done in the case of diphtheria? As state commissioner of health I have felt like waiting on further results in the city of New York, believing it would be a mistake in view of the active campaign for eradication of diphtheria to add still another campaign which involved, to my mind, some difficult procedures on the part of general practitioners and local health officers, and up to the present time I have confined my action to distributing at various stations throughout the state supplies from the state laboratory of the scarlet fever antitoxin for curative purposes, and not emphasized or started a campaign against scarlet fever. I have been tremendously impressed with the therapeutic value of this remedy, which I have myself observed with Dr. Park at the Willard Parker Hospital. I should like to hear Dr. Park's opinion as to the best course for state and local health officers to advocate regarding testing for immunity to scarlet fever and inducing immunity in susceptibles on a large scale.

Dr. William H. Park, New York: Just a word about Dr. Zingher's statement that Moser had a better serum than that produced by Dochez or Dick. We had no way of standardizing Moser's serum; some of it was probably very good and some very poor; that is probably the reason it fell into disuse because it could not be standardized at that time. As to the question of refined and unrefined, we have had our hospital use the unrefined in about 150 cases and the refined in about seventy-five. There has been no difference in the effects except in the rashes, other symptoms and serum sickness. There have been no bad results. As to the amount of toxin used in the Dick standard test, of course we must realize that the Dicks, just like Schick, are trying to separate the susceptible from those who are not. That is a difficult problem. If it is a little too strong there will be too many positives; if it is too weak there is the possibility of having people who are susceptible pronounced immune. As to Dr. Nicoll's question, it seems to me we have sufficient evidence to say that a negative Dick test in untreated cases indicates a fairly permanent immunity. Those who pass the test are probably immune for many years, maybe for life. As to immunization in general, I would advise at present to use it only when scarlet fever is more or less a possibility. In such instances people are interested and immunization will be of value to stop the present outbreak. I would not press it until another year has gone by at least, and until we know how permanent is the immunity and the number of doses that are best to give. We advise at the present time 500, 1,000 and 2,000 and then a final one of 5,000 skin doses.

NOVASUROL IN THE TREATMENT OF ASCITES IN HEPATIC DISEASE *

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Novasurol is a double salt of sodium mercurichlorphenyl oxycetate with diethylbarbituric acid (barbital), and contains 33.9 per cent. of mercury. It was introduced originally by Zieler[1] as a remedy for syphilis, but at present it is being used largely as a diuretic. Since the beginning of the nineteenth century, mercury compounds have been recommended as diuretics by certain authors, but these have failed of general application because of ineffectiveness or of untoward or toxic effects. Novasurol has an advantage over metallic mercury and calomel in that it is freely soluble in water and may be administered by subcutaneous, intramuscular or intravenous injections.

Our interest in this drug was incited by a statement of Wenckebach, in whose clinic Saxl and Heilig[2] first proved its efficacy in cases of cardiac dropsy, in the treatment of which its best results have been obtained. It often succeeds in cases in which the purin derivatives and digitalis have failed. Apparently it has also proved useful in some cases of edema of renal origin, as shown by Keith, Barrier and Whelan,[3] and it will unquestionably play an important part in the future in the treatment of certain types of nephritic edema.

ACTION OF NOVASUROL

Saxl and Heilig[2] demonstrated a relative and absolute increase in the excretion of chlorids in the urine. Bohn[4] proved that this occurred in normal rabbits. Nonnenbruch[5] and Mühling[6] showed that novasurol caused an increase in the excretion of chlorids in the urine in normal persons, but that diuresis did not always occur. Keith and Whelan[7] confirmed this finding in two normal persons and in the dog. They also found that, under the influence of this drug, there was a relative and absolute increase in the output of sodium in the urine.

According to the literature, the results from novasurol in cases of ascites and edema of portal cirrhosis are unsatisfactory. Brunn[8] states that diuresis failed to appear in cases of cirrhosis of the liver, and that headache and vomiting followed its use in one case. Mühling[6] records increase in icterus following its use, evidence, he believes, of injury to the liver. Hassencamp[9] failed to induce diuresis in two cases of hepatic cirrhosis. On the other hand, Bleyer[10] obtained a good effect in one case, and Fodor[11] maintains that novasurol is effective in the ascites of cirrhosis and in polyserositis, provided the patient presents a good blood pressure. Rowntree and Barrier[12] have reported some excellent results in cases of cirrhosis of the liver and Banti's disease.

The clinical material serving as the basis of this report comprises twenty cases in all, including ten cases of portal cirrhosis, two of portal cirrhosis and cardiac decompensation, two of syphilitic cirrhosis, two of Banti's disease, two of neoplastic disease with metastasis to the liver, one of polyserositis, and one of polycythemia with chronic endocarditis and myocardial insufficiency. In each of these cases the ascites was marked, and in most of them constituted an outstanding clinical feature. Demonstrable cardiac and renal insufficiency was lacking in all but three, but in these it unquestionably constituted an additional factor in the causation of the edema, as shown in the accompanying tabulation.

The medical treatment of ascites is similar to that of general edema, especially in the restriction of water and salt, the control of diet and the use of diuretic drugs. Novasurol has been used alone in certain cases with striking results. However, the best results have come from the combined use of novasurol intramuscularly or intravenously, and ammonium chlorid by mouth, together with a controlled diet of a fixed low-water and low-salt content.[13] Novasurol is given in doses up to 2 c.c. intramuscularly or intravenously at intervals of from three days to a week. The tolerance of this drug is first determined by the administration of from 0.5 to 0.75 c.c. intramuscularly. Ammonium chlorid is administered by mouth in divided doses up to 10 gm. daily, and is best given in the crystalline form in capsules of 0.75 gm. or 1.50 gm. In nineteen of the twenty cases, diuresis has resulted from this treatment.

In eight cases, during the diuretic periods, the urinary excretion of chlorin and sodium was relatively and absolutely increased; that of potassium and calcium usually absolutely increased. These results indicated a marked increase in the total output of fixed base. Actual determination of the total fixed base, by the method of Fiske,[14] accurately confirmed the increase indicated by the analysis of the individual bases. The total output of urea, ammonia and total nitrogen was also slightly increased. The greater and more constant diuresis, which we have obtained with novasurol combined with ammonium chlorid, appears to be due to the increased chlorin in the tissues, rather than to the decrease in the alkali reserve.

Blood analysis in many of these cases failed to show any constant changes in the concentration of hemoglobin, serum protein and chlorin. On two occasions, there was a fall in the serum chlorin during diuresis, as

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[*] From the Division of Medicine, Mayo Clinic and the Mayo Foundation

[*] Read before the Section on Pharmacology and Therapeutics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[*] Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints. A copy of the latter will be sent by the authors on request

1. Zieler, Karl. Novasurol, ein neues Quecksilbersalz zur Syphilisbehandlung, mit Bemerkungen über die Grundsätze der Quecksilber behandlung, München med Wchnschr. **2:** 1257-1259, 1917.

2 Saxl, Paul; and Heilig, Robert: Ueber die diuretische Wirkung von Novasurol und anderen Quecksilberinjektionen, Wien. klin. Wchnschr **33:** 943 944, 1920.

3. Keith, N. M.; Barrier, C W., and Whelan, Mary: The Diuretic Action of Ammonium Chlorid and Novasurol in Cases of Nephritis with Edema, J. A. M. A. **85:** 799 (Sept. 12) 1925.

4 Bohn, Hans. Experimentelle Studien uber die diuretische Wirkung des Novasurols, Klin Wchnschr. **2:** 352 353 (Feb 19) 1923.

5. Nonnenbruch, W.· Ueber die Wirkung des Novasurols auf Blut und Diurese, München. med Wchnschr. **2:** 1282-1283, 1921

6. Mühling, Adolf: Studie uber die diuretische Wirkungsweise von Quecksilber, ausgeführt mit dem organischen Quecksilber-praparat Novasurol, München. med. Wchnschr. **2:** 1447 1449, 1921.

7. Keith, N. M., and Whelan, Mary: The Effect of Novasurol on the Composition of Blood and Urine, Am. J. Physiol **72:** 195-196, 1925.

8. Brunn, Fritz: Zur Wirkung des Novasurols als Diuretikum, München. med. Wchnschr **2:** 1554-1555, 1921.

9. Hassencamp, E . Novasurol als Diuretikum, Zentralbl. f. inn. Med. **43:** 105 108 (Feb. 11) 1922

10. Bleyer, Leo: Erfahrungen über die Novasuroldiurese, Klin. Wchnschr. **1:** 1940-1942 (Sept 23) 1922.

11. Fodor, Emmerich: Ueber das Indikationsgebiet des Novasurols als Diuretikum, Med. Klin. **19:** 684 685 (May 20) 1923.

12. Rowntree, L G , and Barrier, C. W.: Diuretic Effect of Novasurol in the Ascites of Portal Obstruction, Collected Papers of the Mayo Clinic **16:** 221-223, 1924

13. The low-fluid, low-salt daily diet contains 800 c.c. of water, and ions as follows: sodium, 0 49 gm.; potassium, 1.76 gm.; calcium, 0 23 gm ; magnesium, 0 20 gm.; chlorin, 0.74 gm. Eight hundred cubic centimeters of water, besides that in the food, is also allowed.

14. Fiske, C. H.: A Method for the Estimation of Total Base in Urine, J. Biol. Chem. **51:** 55 61 (March) 1922.

has been reported by Crawford and McIntosh[15] in their cases of cardiac edema. Nor did we find any constant changes in the concentration of the inorganic ions in the serum. The carbon dioxid capacity of the plasma remained unchanged during the diuresis.

Novasurol produces an increased excretion of sodium and chlorin in the urine. Whether the seat of this specific action is in the kidney only, in the tissues generally, or in both, has yet to be determined. Combined studies of the constituents in both blood and urine have so far failed to reveal the exact site of its action, and further experimental work is required.

Clinical Results in Twenty Cases of Ascites

						Urine Output, C.c.			
Case	Sex* and Age	Diagnosis	Date	Grade of Ascites	Weight, Kg.	Minimal	Maximal	Medication	Result of Treatment
1	♂ 63	Portal cirrhosis of liver	11/21/24 12/17/24	3 0	82.7 68	300	3,000	Novasurol, six doses	Excellent
			3/19/25 4/ 3/25	1 0	72.7 65.4	300	3,700	Novasurol, three doses	Excellent
2	♂ 48	Portal cirrhosis of liver	1/ 9/25 1/20/25	3 0	70.3 57.1	250	2,200	Novasurol, four doses Ammonium chlorid	Excellent
3	♂ 47	Portal cirrhosis of liver	11/17/24 11/25/24	3 3	91.9 90.5	500	2,800	Novasurol, two doses Ammonium chlorid	Unsatisfactory
4	♂ 53	Portal cirrhosis of liver and Endameba coli	12/ 8/24 12/23/24	3 2	88.2 77.1	375	3,650	Novasurol, four doses Ammonium chlorid	Fair
			1/ 5/25 1/21/25	2 2	78.2 73.2	400	1,750	Novasurol, three doses Ammonium chlorid	Unsatisfactory
5	♀ 27	Portal cirrhosis of liver	1/ 8/25 1/27/25	2 1	81.6 75.3	300	1,450	Novasurol, four doses	Fair
			4/28/25 5/13/25	2 0	86.1 68.9	350	4,800	Novasurol, four doses Ammonium chlorid	Excellent
6	♂ 55	Portal cirrhosis of liver	4/13/25 5/22/25	3 0	86.2 72.6	300	3,700	Novasurol, seven doses Ammonium chlorid	Excellent
7	♀ 55	Portal cirrhosis of liver	4/ 7/25 4/24/25	3 2	66.7 61.7	200	1,300	Novasurol, six doses	Fair
8	♂ 50	Portal cirrhosis of liver	4/10/25 4/18/25	3 0	55.1 47.4	400	2,000	Novasurol, five doses	Good
9	♂ 52	Portal cirrhosis of liver	5/ 2/25 5/16/25	3 0	62.4 53.1	700	2,900	Novasurol, five doses Ammonium chlorid	Excellent
10	♂ 51	Portal cirrhosis of liver	5/ 6/25 5/18/25	2 0	81.8 75.5	500	2,500	Novasurol, three doses Ammonium chlorid	Excellent
11	♀ 40	Syphilitic cirrhosis	11/29/24 1/ 3/25	2 1	64.9 59.4	300	1,500	Novasurol, four doses Ammonium chlorid	Fair
12	♂ 57	Syphilitic cirrhosis	4/ 7/25 4/21/25	4 2	72.6 63.5	600	1,600	Novasurol, six doses Ammonium chlorid	Fair
			5/13/25 5/26/25	2 0	63.5 56.7	500	2,600	Novasurol, one dose Ammonium chlorid	Excellent
13	♂ 40	Abdominal neoplasm	2/ 3/25	3	102.1	200	500	Novasurol, one dose	Unsatisfactory
14	♂ 61	Abdominal neoplasm	4/14/25 4/25/25	3 1	53.7 43.5	500	3,000	Novasurol, three doses Ammonium chlorid	Good
15	♂ 49	Banti's disease	6/13/24 7/ 1/24	2 0	95.9 86.3	200	500 2,000+?	Novasurol, three doses	Excellent so far as edema and ascites were concerned; died six mo. later from hemorrhage
16	♂ 53	Banti's disease	10/17/24 11/28/24	3 0	71.2 55.8	600	2,900	Novasurol, eight doses Ammonium chlorid	Excellent
17	♀ 20	Polyserositis (Pick's disease)	2/25/25 4/ 1/25	3 0	59.0 44.5	200	2,800	Novasurol, eight doses Ammonium chlorid	Excellent
18	♂ 63	Myocardial degeneration; portal cirrhosis of liver; chronic nephritis	1/20/25 3/ 9/25	4 0	111.0 70.1	400	4,600	Novasurol, six doses Ammonium chlorid	Excellent
19	♂ 55	Myocardial degeneration; portal cirrhosis of liver	10/31/24 12/12/24	3 0	99.6 79.8	500	1,600	Novasurol, three doses Theocin	Good
			1/ 6/25 1/22/25	2 0	84.8 80.5	400	2,300	Digitalis and theocin	Good
			4/16/25 5/ 2/25	2 0	88.2 81.2	400	1,400	Digitalis	Good
20	♂ 35	Chronic endocarditis; mitral disease; polycythemia	6/ 8/25 7/ 6/25	3 0	60.8 51.3	200	2,050	Novasurol, seven doses Ammonium chlorid	Excellent

* In this column, ♂ indicates male; ♀, female.

RESULTS IN CIRRHOSIS OF THE LIVER

Novasurol has been employed in this series in ten cases of cirrhosis of the liver associated with ascites, and has caused diuresis in all. Repeated periods of diuresis have caused the disappearance of ascites and edema in seven cases, and to a large extent, also, the evidences of collateral circulation. After the fluid has disappeared, the patients have improved remarkably in health and strength. Case 1 represents an excellent result and one that is rather characteristic of the group as a whole.

CASE 1.—*Atrophic portal cirrhosis of the liver.* A man, aged 63, admitted to the Mayo Clinic, Nov. 11, 1924, complaining of enlargement of the abdomen (ascites), had had an acute attack of right-sided abdominal pain associated with hematuria on Thanksgiving Day, 1923, attributed, by the family physician, to renal calculus. The patient had suffered from bilateral inguinal hernia for fifteen years. He complained of a bloating sensation and diarrhea for one month during the spring of 1924. In July, he found that the hernial contents were reduced with more difficulty and that they frequently "slipped out" during the night, causing discomfort and loss of sleep. Operation, in August, revealed free abdominal fluid, and the examination showed enlargement of the spleen. His local physician made a diagnosis of cirrhosis of the liver.

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[15] Crawford, J. H., and McIntosh, J. F.: Observations on the Use of Novasurol in Edema Due to Heart Failure, J. Clin. Investigation 1: 333-358 (April) 1925.

Early in September, the abdomen began to enlarge and the quantity of urine to diminish appreciably. This progressed steadily, and with it slight swelling appeared in the feet and ankles and lower part of the legs. His weight remained almost stationary, with fluid collecting in the abdomen, but the face, arms and legs became noticeably thinner. During the two weeks before admission, he experienced a growing tendency to weakness with occasional slight dizziness, and to difficulty in starting urination, especially when the daily quantity was small.

He weighed 195 pounds (88.6 kg.). The abdomen was markedly distended with fluid. Collateral channels over the abdomen and thorax were moderately well marked. The face, arms and legs were moderately emaciated. The tongue was red and parched. The tonsils were enlarged, and fluid pus could be expressed. An enlarged cervical gland was found, and on biopsy proved to be inflammatory in nature. The heart measured 2.5 cm. to the right and 14 cm. to the left, the apex being in the fourth intercostal space. A systolic murmur was audible over the entire precordium, and the aortic second sound was accentuated. The peripheral vessels were sclerosed 2. The blood pressure was 160 systolic and 100 diastolic; the pulse was 100. The lungs were clear. Other than ascites 3, nothing could be made out in the abdomen. Moderate edema was evident in the legs and in the sacral region. The eyegrounds were clear except for mild senile fibrosis of the retinal arteries. The urine was scanty, from 200 to 300 c.c. daily, with a trace of albumin. The hemoglobin was 55 per cent.; the erythrocytes numbered 3,480,000, and the leukocytes 3,000, with neutrophils 53 and lymphocytes 45 per cent. The phenolsulphonephthalein output was 45 per cent., and the blood urea 40 mg. for each 100 c.c. of blood.

The patient was admitted to the hospital. A diagnosis of cirrhosis of the liver was made, the abdomen tapped, and 12 liters of fluid withdrawn. At this time, the liver was found to be markedly enlarged and firm in consistency, extending 5 cm. below the left costal margin. The fluid rapidly reaccumulated during the next week, and a second paracentesis was considered. His weight was 181 pounds (82.7 kg.), and the blood pressure 140 systolic and 54 diastolic. There was retention 3 of phenoltetrachlorphthalein, but the serum bilirubin was normal (1.4 mg.). The stools were light in color; the urine did not contain bile.

The patient was placed on a diet; fluids and salts were restricted, and novasurol was given. Diuresis followed each injection, and the weight rapidly diminished as the ascites disappeared. Tests of hepatic function, made ten days later, showed a normal amount of bilirubin in the serum (1.6 mg.), dye retention 2, and a positive fructose tolerance test. The effect of novasurol is shown in Chart 1. At the end of four weeks the patient had lost 33 pounds (15 kg.); the girth had decreased from 110 to 85 cm., and fluid could be no longer detected in the abdomen. The spleen was easily palpable; in fact, a mass was visible on respiration, and the edge of the liver could be felt almost 4 cm. below the xiphoid, but not under the right costal margin. The patient had gained materially in strength and was walking about with great comfort. The hemoglobin was still 55 per cent., and the erythrocytes numbered 3,150,000, but the leukocytes had increased to 6,600. The patient was dismissed in excellent clinical condition.

The patient returned, March 19, 1925, for a review of his condition. He reported that it had been satisfactory since leaving the hospital about three months before. He had taken ammonium chlorid at intervals, but had had no novasurol since his dismissal. He had gained 12 pounds (5 kg.), and there was some tendency to recurrence of fluid in the abdomen (ascites 1), but little or no evidence of collateral circulation. The spleen was easily felt, but the edge of the liver was just barely palpable; edema 1 to 2 of the lower extremities was present. The urine was free from albumin and casts; the specific gravity was 1.027. The stool gave repeated positive tests for blood and bile. The tests of hepatic function showed dye retention 2 and serum bilirubin 0.9 mg. The patient was again admitted to the hospital and given ammonium chlorid for four days, with no loss in weight. Following his first dose of novasurol, a diuresis reaching 3,700 c.c. resulted. After a second dose of novasurol four days later, the fluid in his abdomen disappeared entirely. He was given a third dose, but the output of urine was only 1,000 c.c. He was dismissed, April 6, 1925, entirely free from ascites, and advised to continue the weighed low-fluid, low-salt diet with about 600 c.c. of extra fluid. He returned, July 8, 1925, weighing 130 pounds (60 kg.), and reported that he had had hematemesis two weeks previously. The retention of the dye was graded 1, and the serum bilirubin was normal.

RESULTS IN SPLENIC ANEMIA, BANTI'S DISEASE

In both of our cases of Banti's disease, the ascites was extreme, and in both there had been many previous tappings. They both responded to novasurol with results that are little short of marvelous.

Case 16.—*Banti's disease and ascites.* A man, aged 53, was admitted to the clinic, Oct. 14, 1924, with the diagnosis of Banti's disease and ascites. His chief complaint was ascites and hematemesis for a period of three years. Between 18 and 43 years of age, the patient had been well except for "summer attacks of heavy pain across the lower abdomen, lasting from three to four days and relieved by catharsis." In July, 1906, he had had an attack of severe pain across the lower abdomen with a temperature of 101 F. He was placed on a liquid diet and lost 30 pounds (13.6 kg.). In August, 1914, he had had a sudden attack of pain in the region of the appendix. An operation was performed for acute appendical abscess. A hernia occurred at the site of the operation. In December, 1920, after a heavy meal, a sudden gastric hemorrhage occurred, with a loss of 1,500 c.c. of blood, and melena for five days thereafter. One month later his physician found an enlarged spleen, for which two roentgenologic treatments were given, with the result that the spleen became definitely smaller. In December, 1922, intestinal obstruction occurred in the region of the hernia, but the patient recovered satisfactorily. June 7, 1923, the hernia was repaired. In December, 1923, the veins over the abdomen, particularly in the region of the hernia, became greatly distended; ascites appeared; two severe gastric hemorrhages occurred, and the spleen became markedly enlarged. During the last year the patient had been tapped twenty-one times, and during the six weeks before admission he had become gradually weaker.

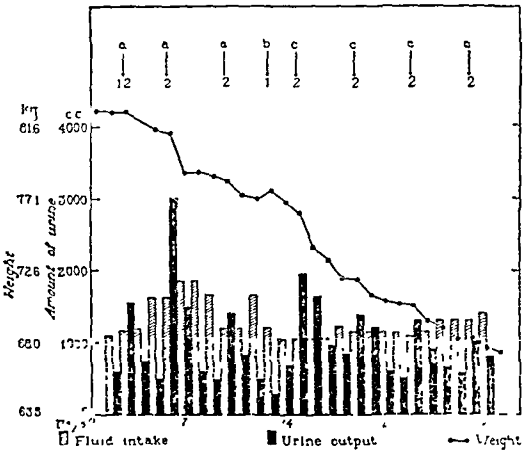

Chart 1 (Case 1).—Fluid balance, diuresis and weight loss under novasurol: *a*, intramuscular injection; *b*, intra-abdominal; *c*, intravenous. In the charts, the shaded columns indicate fluid intake; solid columns, urine output; solid line, weight.

The patient was considerably emaciated. Pyorrhea 1 to 2, and marked ascites 3 were present. The spleen was palpable three finger-breadths below the costal margin. The blood pressure was 118 systolic and 78 diastolic; the pulse was 92. The urine was clear; the specific gravity was 1.010; the reaction was acid, with no albumin, sugar or bile, but a good trace of urobilin and urobilinogen. The hemoglobin was 63 per cent.; the erythrocytes numbered 4,360,000, and the leukocytes 2,400. The coagulation time was seven minutes, and the bleeding time five minutes. The resistance of the erythrocytes was somewhat increased. A gastric test meal showed a total acidity of 20, free hydrochloric acid 8, and total quantity 100 c.c. The blood Wassermann reaction was negative. Examination of the fundi was negative except that there was a suggestion of fibrosis in the retinal arteries. The tonsils were somewhat enlarged. Studies of hepatic function showed a dye retention 1 and normal values for serum bilirubin. The patient was placed in the hospital on a medical regimen, which consisted of restriction of fluids, a diet of 1,500 calories and 40 gm. of protein Charts of fluid balance were kept; 3 gm. of ammonium chlorid was given daily, and injections of novasurol were administered intramuscularly with results as indicated in Chart 2. No untoward effects followed any of the injections, except that the patient complained some of pain and tenderness following the first intramuscular injection. At the end of six weeks, the ascites had entirely disappeared, as had also the abdominal collateral channels. The weight decreased from 157 to 123 pounds (71.2 to 55.8 kg.). The gain in health and strength was equally striking, the patient walking on some days as much as 7 miles without undue fatigue. He returned home and took up his business responsibilities with considerable zest.

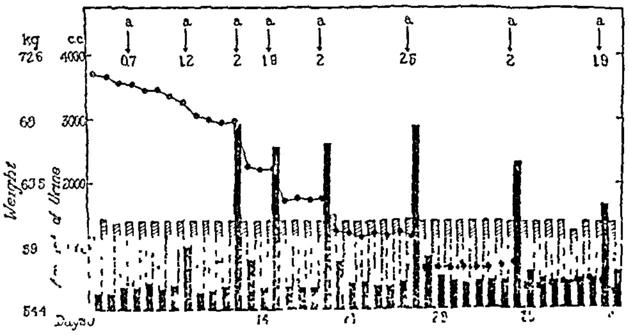

Chart 2 (Case 16) —Fluid balance, diuresis and weight loss under novasurol. *a*, cubic centimeters intramuscularly.

Reports from the patient's local physician three months later indicated that there existed a constant tendency for the abdominal fluid to recollect. However, a weekly injection of novasurol sufficed to prevent the development of edema and ascites. Subsequently, the patient visited Europe and while there consulted Muller and Wenckebach, who advised against operation. In a letter received June 15, 1925, the patient stated that he was quite recovered, in excellent physical condition, and in need of no further medication.

RESULTS IN SYPHILITIC CIRRHOSIS

Novasurol has been utilized in several cases of ascites associated with syphilis of the liver by O'Leary.

CASE 12.—*Syphilitic cirrhosis.*—A man, aged 50, was admitted to the clinic, Sept. 16, 1919, complaining of a pain in the pit of his stomach, and of having had sour eructations after meals for two years. The serum Wassermann reaction was positive. A diagnosis was made of aneurysm of the aortic arch, and tertiary syphilis. He was seen again in April, 1920; November, 1920; June, 1921; February, 1922, and February, 1923. His condition was fairly good until March, 1924, when he returned complaining of a brassy cough and considerable dyspnea on effort, which had begun with a left-sided pneumonia a year earlier. The cords showed no lesion or evidence of paralysis at that time. There was no edema of the extremities. The aneurysm of the aortic arch could be outlined by roentgen rays. On the last examination, April 7, 1925, he stated that he had felt well until March 1, 1925, when he began to feel below par, and noted a fulness in the abdomen. The legs became edematous, and there was moderate dyspnea.

Physical examination revealed ascites 4, with marked abdominal collateral circulation. The heart measured 18 cm. in the fourth interspace, and there was a dilated arch with systolic and diastolic murmurs at the base. There was slight edema of the lower extremities.

A diagnosis of aortic aneurysm with myocardial degeneration, and syphilitic cirrhosis with ascites, was made and the patient was admitted to the hospital. Ammonium chlorid and novasurol were given with a resulting diuresis, after which there was considerable improvement (Chart 3). Because of nausea, the ammonium chlorid was discontinued and the novasurol repeated, with a loss of 18 pounds (8.2 kg.) in three days. Tests of hepatic function at this time showed dye retention 3, latent jaundice, and serum bilirubin 2.4 mg. The patient was given seven injections of novasurol during the following month, with a fair response on each occasion. He had lost 30 pounds (13.6 kg.), but was still not entirely free from edema. The abdomen was still very prominent, and there was slight distention of the lateral veins. There was ascites 3. The specific gravity of the urine was 1.020; it was acid in reaction, and the urine contained albumin 1. The hemoglobin was 55 per cent.; the erythrocytes numbered 3,090,000, and the leukocytes 3,500. The phenolsulphonephthalein return in the urine was 55 per cent. in two hours. The blood urea was 43 mg.; creatinin, 3.8 mg.; uric acid, 4.9 mg., and chlorids, 580 mg. for each 100 c.c. of blood. The carbon dioxid combining power was 56 per cent. by volume, and acid hemoglobin 14 gm. per cent.

The patient was placed on a weighed diet, low in salt and containing 800 c.c. of fluid with 600 c.c. of additional fluid, and was given 10 gm. daily of ammonium chlorid in capsules. Under this combined treatment, a further loss of 15¼ pounds (6.9 kg.) was effected in eight days. On being sent home, he was given the low salt diet with restricted fluid intake, Blaud's pills, and tonic remedies, and was told to pay special attention to rest and exercise. A note received June 18, 1925, indicates that there is a slight tendency for the fluid to recollect.

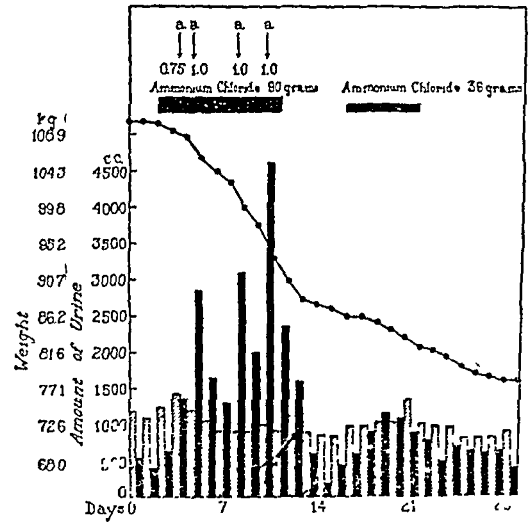

Chart 3 (Case 12) —Fluid balance with combined use of ammonium chlorid and novasurol: *a*, cubic centimeters of novasurol.

RESULTS OF TREATMENT OF ASCITES AND EDEMA IN CASES OF PORTAL CIRRHOSIS WITH MYOCARDIAL AND RENAL INVOLVEMENT

CASE 18.—*Portal cirrhosis with myocardial and renal involvement.* A man, aged 63, who came to the clinic, Jan. 20, 1925, complained chiefly of discomfort due to fluid in the abdomen. His present illness came on gradually. In November, 1922, slight edema of the extremities was followed by ascites. There was no preceding dyspnea, palpitation or cardiac distress. Paracentesis was performed on eight different occasions, from about 8,000 to 10,000 c.c. of rather dark colored fluid being removed at each tapping. The relief obtained by these aspirations lasted only about five or six weeks. During the last year, the patient had been treated at Clifton Springs, by means of calcium chlorid, and had lost 70 pounds (31.8 kg.) in four weeks. He had continued this medication until six weeks before coming to the clinic. At that time, because of marked pruritus, the calcium chlorid was discontinued. He also became careless in his diet and gradually regained his former weight and girth.

At the time of admission, the patient's weight was 244 pounds (111 kg.). There was marked ascites, and none of the abdominal organs were palpable. There was considerable edema in the sacrolumbar region and the lower extremities, but none in the upper.

The urine showed a specific gravity of 1.030, a faint trace of albumin, and occasional hyaline and granular casts. The blood urea was 54 mg. and the creatinin 2.2 mg. for each 100 c.c. The hemoglobin was 70 per cent.; the erythrocytes numbered 3,800,000, and the leukocytes 5,200. The blood Wassermann reaction was negative. Tests of hepatic function showed dye retention 4 and serum bilirubin 2.1 mg. The electrocardiogram showed auricular fibrillation, a right ventricular preponderance, and inverted T wave in Leads I and II. The roentgenogram showed a maximal cardiac enlargement with apparently slight dilatation of the aorta. The diagnosis was portal cirrhosis, myocardial degeneration, and chronic nephritis.

The patient was put on a controlled low-fluid, low-salt diet consisting of 40 gm. of protein. Ten grams of ammonium chlorid was administered daily in capsules. Small doses of novasurol (from 0.75 to 1.5 c.c.), given intravenously every four days, resulted in marked diuresis. The patient lost 85 pounds (40.9 kg.), as shown in Chart 4, and at the time of his dismissal, April 1, 1925, was entirely free from ascites and edema, and felt very well. The edge of the liver could now be felt 8 cm. below the right costal margin. The patient was very active and able to walk several miles every day. On dismissal, he was advised to continue the same regimen, to take a diet of 2,000 calories with 50 gm. of protein, and 1,000 c.c. of extra fluid. A report received three months after dismissal states that there had been no return of symptoms, and that his weight is 157 pounds (71.4 kg.).

In this case, there were three possible etiologic factors for the edema and ascites—myocardial degeneration, cirrhosis of the liver, and renal insufficiency—all of which were definitely present. The fact that novasurol was so efficacious indicates that not one of these conditions per se contraindicates its use.

RESULTS IN PICK'S DISEASE, OR CHRONIC POLYSEROSITIS

Case 17.—*Chronic polyserositis.* A girl, aged 20, came to the clinic with anasarca, and was admitted as an emergency case.[16] Her chief complaints were dyspnea, palpitation, fatigue and anasarca. Her present illness was insidious in onset, beginning two and one-half years before, with menstrual changes and loss of weight. Menstruation became irregular and scanty, and finally disappeared nine months before admission, at which time edema appeared for the first time. She also noted precordial distress and palpitation on exertion. In April, 1923, she had two attacks of hemoptysis, about 200 c.c. of blood being lost each time. Subsequently, the precordial distress was more pronounced, and medical advice was sought. At this time, she was in the hospital for two months, and irregular fever was noted. She lost her voice, as a result, it was thought, of involvement of the recurrent laryngeal nerve. Her heart was extremely large. The condition was diagnosed pericarditis with effusion. She was tapped five times, and on one occasion 1,500 c.c. of straw-colored fluid was removed, supposedly from the pericardium. Guinea-pig tests were negative. Following this, she improved markedly until February, 1924, at which time she noted that the upper part of the abdomen was becoming bloated. This persisted, and later the lower extremities became edematous, and she became extremely dyspneic. There was a hacking cough, and some expectoration. The urinary output was decreased. Fluids were restricted, but there was no deprivation of salt.

On admission, the patient was dyspneic and had a pasty complexion, and there was obvious edema of the face. She had typical watch-crystal nails, an injected throat and small tonsils, also prominent cervical veins. The chest was asymmetrical. There was dulness to percussion over both apexes, with limited respiratory movement and breath sounds more marked over the left lung. The right side contained a moderate amount of fluid. The left side of the chest showed moist crackles throughout. The heart was large, extending 12.5 cm. to the left, and 5 cm. to the right at the fourth interspace. The abdomen was distended, and the liver showed enlargement 4, extending almost to the umbilicus. There was fluid in the flanks, and edema 3 of the extremities extending to the thighs. The heart sounds were distant. A roentgenogram of the chest showed a dense thickening of the pleura at the left base. Fluoroscopy revealed no evidence of pericarditis with effusion or pericardial adhesions. The urine was small in quantity, about 150 to 200 c.c., with albumin, trace to 2, and occasional hyaline casts. The phenolsulphonephthalein excretion was 35 per cent. in two hours, and the blood urea was 13 mg. for each 100 c.c. The hemoglobin was 76 per cent.; the erythrocytes numbered 4,100,000, and the leukocytes 5,200. Repeated analyses of the sputum revealed no tuberculosis. The Wassermann reaction was also negative. The stools gave a positive benzidin test for blood. An electrocardiogram showed inversion of the T waves in Leads I, II and III. The diagnosis was made of Pick's disease, general anasarca with ascites, hydrothorax, probably hydropericardium, chronic enlargement of the liver, and possibly chronic passive congestion of the kidney.

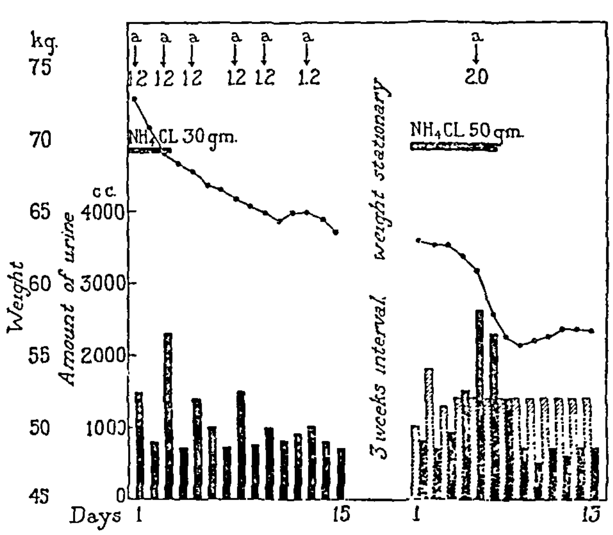

Chart 4 (Case 18).—Fluid balance with combined use of ammonium chlorid and novasurol: *a*, cubic centimeters of novasurol intravenously.

The patient was placed in bed with a back rest, put on a Karell diet, and treated with digitalis. The systolic blood pressure was 100, the diastolic 70. The weight was 137½ pounds (62.5 kg.) and was reduced to 130 pounds (59 kg.) under this regimen. At this time, ammonium chlorid, 8 gm. daily, was given by mouth, and novasurol was administered four days later. The course of events under this ammonium chlorid and novasurol treatment is shown in Chart 5. This treatment was continued for a month. The patient received in all eight doses of novasurol. Diuresis was pronounced following each injection. On some occasions, the fluid output reached from 2 to 3 liters. The weight was reduced from 137 to 97 pounds (59.2 to 44.5 kg.). On dismissal, the patient had lost every trace of edema. She had been on a weighed, low-fluid, low-salt diet of 2,000 calories with 400 c.c. of extra fluid daily, and she was advised to continue this after leaving the hospital.

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[16] The patient's physician, in his letter of reference to the clinic, stated that the anasarca was of a most obstinate type and had resisted all forms of treatment.

RESULTS IN AN UNUSUAL CASE OF POLYCYTHEMIA, ASCITES AND HYDROTHORAX COMPLICATING MYOCARDIAL INSUFFICIENCY[17]

Case 20.—*Polycythemia and myocardial insufficiency.* A man, aged 35, admitted to the clinic, May 21, 1925, complained of distress in his stomach, and of dyspnea. Aside from diphtheria and scarlatina during childhood, he had never been ill until he had influenza in 1918, from which he made a good recovery. About five years before his present illness, he had had frequent severe epistaxis. About two years before admission, he first noticed dyspnea following the extraction of two teeth. His gums bled profusely, and the hemorrhage was controlled with difficulty. His condition returned to normal in about a month. During harvest time in 1924 he again became dyspneic, and in November he contracted a severe cold, and his condition become progressively worse. He had also a bad cough, and some mucus in his throat. Later, his abdomen became distended and caused him considerable discomfort. Just prior to his admission, he had been in bed on a Karell diet for six weeks, with no benefit. He had noticed recently a gradual diminishing urinary output.

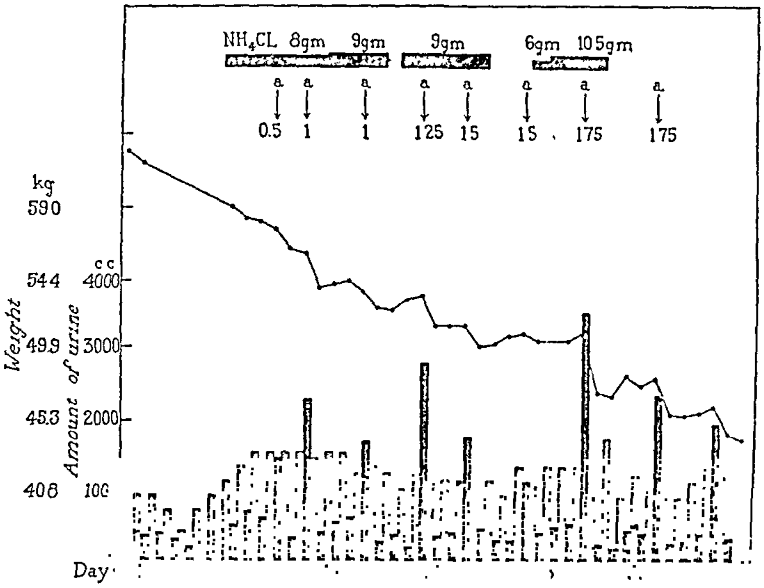

Chart 5 (Case 17).—Fluid balance with combined use of ammonium chlorid and novasurol: *a*, cubic centimeters of novasurol intravenously.

When the patient arrived at the clinic, there was moderate edema of the feet and ankles, and he complained of a dull pain in the right upper abdominal quadrant. He was definitely orthopneic and edematous. There was no striking enlargement of lymph nodes. There was slight pulsation in the veins of the neck. The heart beat was regular, and the organ measured 3 cm. to the right and 12.5 cm. to the left in the fourth interspace. There was a visible and palpable impulse in the sixth space, with a suggestion of a thrill, and a definite diastolic rumble over the apical region. The lungs were clear, except for an area of definitely impaired resonance at the right base, and a few crackling râles at both bases. The liver seemed enlarged on percussion, but the edge could not be definitely felt on account of the ascites. There was peripheral sclerosis 1 to 2. The blood Wassermann reaction was negative. The urine contained a slight amount of albumin and a few hyaline casts; the specific gravity was 1.025. Repeated examinations of the stool showed no parasites or ova. The phenolsulphonephthalein return was 65 per cent. The hemoglobin was 80 per cent.; the erythrocytes numbered 5,600,000, and the leukocytes 8,100. The differential count showed eosinophils varying from 13 to 39.1 per cent. The blood volume was high, 144 c.c. for each kilogram of body weight, and the hemoglobin was 23 gm. per cent. by the acid hematin method. An outstanding feature of the blood picture was the large number of eosinophils. The nonprotein nitrogen was 60 mg. for each 100 c.c., although the blood urea was only 20 mg.; the creatinin was 1.4 mg., and uric acid 6.6 mg. The amino-acid nitrogen was 11.9 mg. A culture of the blood gave no growth on brain broth or blood agar in forty-eight hours. Tests of hepatic function showed dye retention 2 and serum bilirubin 1.59 mg. Roentgenograms of the chest disclosed a slight amount of fluid in the right base. The culture of this fluid was negative. The electrocardiogram showed sinus tachycardia, right ventricular preponderance, notched T wave in Leads I, II and III, and diphasic T wave in Derivation III.

The patient was first treated with digitalis, but did not respond well. Later, he was given ammonium chlorid and the weighed diet, with little or no effect. He was given novasurol three times along with the ammonium chlorid, with a definite diuresis on each occasion. There has been considerable subjective improvement with the relief from the abdominal tension, and the clearing of his hydrothorax. On dismissal, the patient was free from edema (Chart 6).

The gross results in regard to diuresis and weight in the entire series are shown in the tabulation.

COMMENT

The results obtained from the use of novasurol in this series of cases are unquestionably better than we have observed in similar cases with other methods of treatment. Ascites and edema, which have resisted other measures in many instances, have promptly and completely yielded to the regimen here presented.

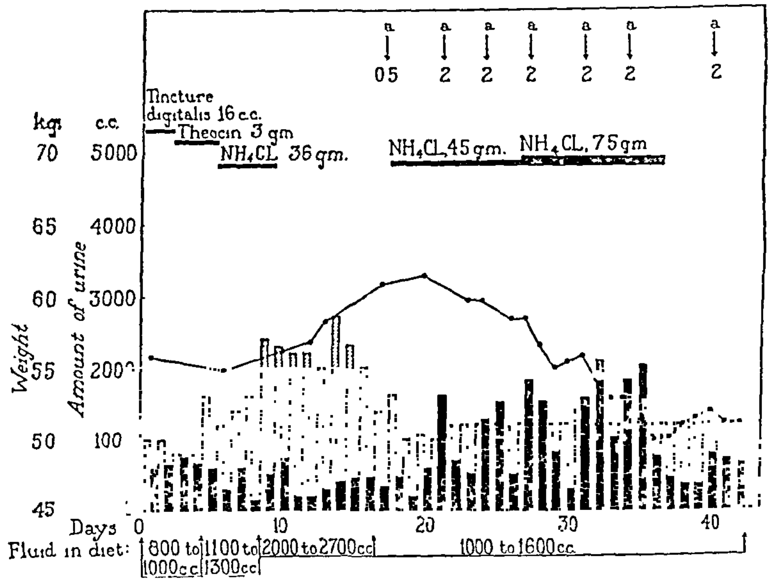

Chart 6 (Case 20).—Relative effect of digitalis, theocin, ammonium chlorid and the combination of ammonium chlorid and novasurol.

The restriction of water is indicated and of undoubted value, and raises the question of the advisability of forcing the water intake in cases of cirrhosis of the liver prior to the appearance of ascites, a practice advocated in some of our leading textbooks of medicine. The low-fluid, low-salt diet is also an important consideration. Recent work in the field of edema emphasizes the importance of the part played by sodium, and thus knowledge of the sodium intake and its restriction is obviously important. The restriction of sodium is more important than the restriction of chlorids, since diuresis results and edema disappears under the forced administration of chlorids, as the ammonium salt. Ammonium chlorid in itself is a powerful diuretic, in this connection excelling calcium chlorid in the treatment of edema. Finally, novasurol is one of the most potent diuretic agents ever introduced into medicine. By itself, it is often capable of increasing the urinary output in a most striking manner. If success is lacking or only partial, its action is usually strikingly enhanced by the adoption of a low-fluid, low-salt diet and the administration of ammonium chlorid.

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[17] The diagnosis of polycythemia can be established reasonably well, although the number of erythrocytes does not reach the upper limits of normal, and the hemoglobin by the Dare method is so much less than the acid hematin estimation.

The results from novasurol have been consistenly good, except in three instances. In one case (Case 4), diagnosed hepatic (biliary) cirrhosis with splenomegaly and ascites, diarrhea resulted together with a slight increase in the preexisting jaundice. However, the patient had previously suffered from colitis and dysentery, with suspicious organisms in the feces. Despite definite diuresis, and a decrease in the ascites with the loss of 11 pounds (5 kg.), the treatment was not considered successful. A second patient with portal cirrhosis (Case 7) lost 10 pounds (4.5 kg.) in the course of two weeks, with moderate diuresis on each of four occasions following the injection of novasurol. However, the fifth injection failed to induce diuresis, and an effort was made to administer ammonium chlorid both by mouth and intravenously, but it could not be tolerated so that resort was had to paracentesis. In a third case, entire lack of cooperation precluded a satisfactory trial of the drug.

Concerning permanence of results, little can be said. In every instance in which ascites was entirely controlled, the results have been far beyond our expectations. In some instances, there has been a tendency to recurrence of ascites and edema subsequently, but this has been controlled by the use of novasurol at intervals of from one to two weeks or more. In other cases, the edema has entirely disappeared, and has shown no tendency to recur.

With the clearing up of ascites in portal cirrhosis, the general health and strength are markedly improved, the abdominal collateral channels disappear almost entirely, and the patient passes from a condition of serious illness to one closely approaching normal. This confirms the results reported by Fudor and Bleyer. In view of certain previous experiences reported in the literature, that is, the lack of effect, or actual harm, in some cases of cirrhosis of the liver, it is obvious that great care is necessary in following the course of events in such cases while treatment is being given. Whereas novasurol, ammonium chlorid or the low-salt diet alone may fail, their combination may effect excellent results.

These results in the treatment of ascites with novasurol have a special interest in view of the current theories of the cause of edema. They certainly argue against a purely mechanical cause. No constant changes in blood pressure have been demonstrated during or following the administration of the drug. It would appear, therefore, that changes of a physicochemical nature, probably affecting the cellular colloids, are responsible for the ascites and edema. It may be that sufficient attention has not been paid to the normal water excreting function of the liver.

These results indicate that ascites of hepatic disease, particularly that of cirrhosis, can usually be adequately controlled by medical measures.

THE PHENOMENA CONCERNED WITH "REACTIONS" FOLLOWING THE TRANSFUSION OF BLOOD

CLINICAL AND EXPERIMENTAL OBSERVATIONS [*]

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AND
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CHICAGO

Clinically, it is recognized that the intravascular introduction of blood to a subject from an individual of homologous species is a therapeutic procedure of first rank. At times, blood transfusion may be the only agency through which life may be saved or prolonged.

While differences of opinion exist as to the method of choice in transfusion, there is unanimous agreement that the factor of greatest importance, with respect to the results, is the blood itself. In this viable fluid tissue lie the potentialities for clinical betterment or for harm. Numerous contributions have emphasized the benefits that have followed blood transfusion.[1] The harmful consequences of the procedure have been dwelt on indifferently by clinicians and in incomplete or detached fashion by laboratory workers. Our report is an attempt to describe (*a*) the type of unwished-for events that may follow blood transfusion and to discuss the nature of such phenomena, and (*b*) to suggest means by which undesirable sequelae may be avoided.

RESPONSES OF RECIPIENTS TO BLOOD TRANSFUSION

The procedure is either beneficial or harmful. Consequent on a successful transfusion, the subjective and objective evidences of well-being and of increased physical and functional efficiency are readily demonstrable. Transfusion to counterbalance massive blood loss, from whatever cause, is accompanied by the most striking and permanent benefits. When the ailment treated is an organic, metabolic, septic affection or a hematologic dyscrasia, though the immediate transfusion response may be satisfactory, the persistence of that result may be brief. It cannot be foretold. Quite often, the subject's condition is better out of all relation to the volume of blood transfused. Again, large transfusion volumes may not be followed by proportionate improvement. Something more fundamental than what is covered by mere increase in blood volume by transfusion requires explanation before one can understand the mechanism that controls responses.

Before describing undesired transfusion responses, it would seem advisable to note why the classification given below has not been generally recognized. Descriptions of the recipient response vary noticeably.

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[*] Because of lack of space, this article is abbreviated in THE JOURNAL The complete article appears in the Transactions of the Section and in the authors' reprints.

[*] Read before the Section on Pathology and Physiology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N J, May, 1925

[1] Hunt, J.. Collected Papers from the Mayo Clinics, Philadelphia, W B Saunders Company, 1919, p 672. Pemberton, J.: Ibid, p. 540. Stetson, R E: Am J. M. Sc **168**: 534

With the possible exception of reports on the acute, or what is commonly called the hemolytic, reaction, post-transfusion phenomena have been considered loosely. Wide discrepancies occur in the communications of scattered observers and even in those from different men working in the same institution (Hunt,[1] Pemberton,[1] Unger,[2] Lindeman [3] and Bernheim [4]). Study of the reports shows quickly that the variations in records are due to clinicians and laboratory workers endeavoring to apply the same language to different observations or different language to factors that essentially are similar. If one regards transfusion as a biologic, immunologic, chemical and clinical experiment, analysis of the reports of recipient response phenomena indicates that often the experiment has lacked all controls; the agents interacting were dissimilar as to kind and quantity; apparatus, time, environment, technical skill, etc., all differed; and yet, a like answer to the problem was expected or, if not secured, was explained away by theory, which theory quickly became the parent of many equally unproved corollaries. The effects of whole blood are compared in relation to citrated, salted or defibrinated blood; with blood at body temperature, or cooled, or refrigerated and later heated; with blood directly passed from vein to vein, or through cannulas, needles, mixing chambers, valves, stopcocks, rubber, glass or metal tubes or cylinders; with blood exposed to air and mechanical trauma and blood not so changed; small volume transfusions (at hourly, daily or weekly intervals) are compared with large volumes, given rarely or frequently—and, in each instance, the blood given may or may not have been physically, chemically or biologically changed from normal. One can multiply almost endlessly the factors that have made it impossible to arrive at a correct appraisal of reaction phenomena, or to compare the results from one set of observers with those of another. It is evident that, not infrequently, so-called reactions in recipients are in no wise due to the effects of transfused blood, as such, and to that alone. Certainly, one should discuss transfusion responses only when all phases of the work are controlled and when the operation concerns itself with the fewest possible sources of error.

The experience with blood transfusion of one of us (F. S.) extends over the last eleven years. At the beginning of the work, there were tried out and discarded all the transfusion methods that were concerned with blood altered from the state in which it flowed from the veins of donors. We felt that, difficult though the problem might be, in order to get all possible advantage from the procedure, one should endeavor to introduce nothing with the blood that was not a normal constituent of it. Therefore, all our transfusions have been made with whole blood. The medium of blood transference has been Percy's ingenious modification of the paraffined glass cylinder, orginally suggested by Kimpton. Thus, we have worked with errors reduced to a minimum and have secured results which are, at least, comparable. The variables still remain, as they will always, the bloods of the donors and the bloods of recipients as they may be biologically or chemically affected by various ailments.

DISCUSSION OF POST-TRANSFUSION RESPONSES

Harmful sequelae to blood transfusion have been manifested to us in three forms: (1) the acute and fulminant; (2) the delayed, not rarely, a disturbance acutely arising, and occasionally violent; (3) the systemic or constitutional, a malfunction, usually febrile, and associated with renal, cardiac, neurologic or gastro-intestinal phenomena.

1. *The Acute (Hemolytic) Recipient Response.*—Previous to the fundamental observations of Guthrie and Huck,[5] our donors were selected successively by the Rous-Turner, Moss, Brem-Moss and, lastly, the Vincent methods of typing. During the experimental period, more than 800 whole blood transfusions were performed by our colleagues and us. Since Guthrie and Huck's report on the limitations of the four group typing, we have selected donors, not only with respect to their positions in the Brem-Moss classes, but also on the basis of their agglutinin-agglutinogen content with prospective recipients (cross-grouping; direct matching). Fifty-four transfusions have been performed with this added donor control. It is a significant tribute to the work of Guthrie and Huck that we have seen no acute, hemolytic recipient responses since we adopted their procedure.

The acute reaction varies in severity directly with the volume of unsuited blood given, but there seem to be minor factors which aggravate the violence and duration of the response. The rate at which blood is introduced, the total time blood has been out of the donor before it is administered, the cooling of blood below 97 F., its exposure to air leading to thrombin formation, the physical blood alterations of preclotting character, and tissue or cell traumas conducive to platelet clumping and to microscopic clots, all appear to be causes capable of producing intense response. Our work indicates that incompatible blood given to a subject in good general shape but affected with an advanced, secondary anemia excites reaction of a degree far greater and more immediate in occurrence than when the recipient is ill from a primary blood dyscrasia or a disease of serious, organic nature. In the latter circumstance, it would seem that not only are protective serum substances deficient in their power to agglutinate and to break up foreign red cells and to split the introduced serum proteins, but liver, heart, kidneys and central nervous system are mechanically or physiologically limited in their capacity to take care of a large volume of cell suspension, suddenly introduced, or quickly to metabolize or eliminate a great quantity of toxic derivatives necessary to establish the pretransfusion balance of body fluids and of tissue function. Thus, it may occur that the foreign blood is successfully split, as would be any foreign protein introduced, but the outcome with respect to function or life lies in the physiologic integrity of those organs which have to do with the distribution, storage, ultimate cleavage and excretion of the alien substance. In the cachectic, or those whose vital tissues are damaged, the task imposed is often beyond the capacity of essential organs, and death is rapid.

It becomes plain, therefore, that the acute or hemolytic recipient response to blood transfused embraces two phases:

(*a*) In the first, the corpuscles of the introduced blood are rapidly agglutinated preliminary to their lysis. What changes follow in the donor's serum on this agglutination, we know little. Whether the donor serum mixes harmoniously with that of the recipient and then aids in the destruction of the agglutinated "foreign" cells or whether the donor cells, as they are agglutinated, disturb the colloidal balance of the donor serum and so render that serum just so much foreign material to be disposed of after the fashion of the cells, no definite statements can be made. The early and transient appearance of serum proteins in the urine subsequent to certain transfusions would appear to indicate that, in some instances, the donor serum-fraction of blood is excreted but slightly altered after the manner of egg albumin when administered intravascularly, or as are the serum albumins when fluid accumulates in serous sacs of the body. It is possible that donor serum may not crack the colloidal balance of the recipient's plasma, but may persist, unsplit, as a foreign serum and pass, unchanged or slightly modified, into the urine. This is in contrast to the mechanism for taking care of agglutinated blood cells. Some of these are engulfed by leukocytes or are directly cleaved. In either event, the fragmented cells constitute a mass of stroma, mineral, albumin and salts which demands active reduction, segregation, storage and elimination before the pretransfusion balance of the recipient's plasma is restored. The clinical phenomena exhibited as acute or hemolytic reaction are conservative and protective in nature, even though, in the working of this function, the result may be fatal or permanently damaging to the recipient.

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[2] Unger, L. J.: Deleterious Effect of Sodium Citrate Employed in Blood Transfusion, J. A. M. A. **77:** 2107 (Dec. 31) 1921.

[3] Lindeman, E. E.: Blood Transfusions Without Chill by Syringe-Cannula System, J. A. M. A. **72:** 1661 (June 7) 1919, Total Blood Volume in Pernicious Anemia, ibid. **70:** 1292 (May 4) 1918.

[4] Bernheim, B. M.: Whole Blood Transfusion and Citrated Blood Transfusion, J. A. M. A. **77:** 275 (July 23) 1921.

[5] Guthrie, C. G., and Huck, J. G.: Bull. Johns Hopkins Hosp. **34:** 37 (Feb.), 80 (March) 1923.

The lytic crisis occurring after transfusion may prove quickly fatal. One of our early experiences included an instance in which death followed within ten minutes of a transfusion given as an emergency measure, when there had been opportunity for but limited donor selection and for blood typing of the crudest. The patient was actually drowned in his own fluids, as pulmonary transudate filled the alveoli. No form of therapy was of avail; the water logged heart returned no response to intravenous digitalis preparation in large dose; epinephrin, if it ever reached the capillary bed, excited no constrictor action. Further, our dosage of epinephrin to counteract post-transfusion reactions was much smaller at that time than is now given.

(*b*) The second phase of the acute recipient response to incompatible blood comprises a great variety of clinical, hematologic, chemical and pathologic abnormalities. If the fulminant phase has not caused death, subsequent disability depends on numerous factors. Of these, we would emphasize particularly the character of the ailment for the relief of which transfusion was performed; the volume of alien blood given, and the pretransfusion, functional efficiency of such organs as the liver, heart, kidneys, blood making tissue, central nervous system and the lungs.

It should be recognized that during the second phase of the acute lytic response the recipient is urgently confronted with the problem of mechanically accommodating a 20 per cent. increase in blood volume, of metabolizing or storing at least an equal percentage of cells (and, probably, serum split products), and of eliminating, by several avenues, a quantity of useless or harmful material suddenly acquired. To essential organs, the demands on physiologic reserves are immediate and extensive. Since, in health, we have only crude and inaccurate methods available for the determination of physiologic reserve, it is quite evident that, when a subject is affected with a dysfunction sufficiently serious to require blood transfusion, the question of functional reserve becomes vital. Death of normal human beings or of experimental animals from specific anaphylactic shock is not an uncommon happening. Such termination is proof of how quickly physiologic reserve may become exhausted. This analogy indicates the possibilities for embarrassment when organs, already damaged by disease or prolonged anemia, are called on to meet the emergency created by a foreign protein material equal to a fifth or a fourth of the subject's own blood proteins. The recipient may be well able to survive the acute vascular crisis associated with lysis, but later may succumb to the metabolic or eliminative load that burdens the kidneys, liver or central nervous system—organs that have been deficient in functional capacity previous to transfusion, and that are further handicapped by the capillary phenomena arising at the immediate transfusion response. Thus it follows that, during the desperate attempt to restore the pretransfusion balance (body fluid and tissue), one or more of the essential organic systems may cease wholly to function. Depending on which basic system fails earliest, the clinical and laboratory pictures of the events vary subsequent to the lytic crisis. So also, do the duration of life, the possibilities of ultimate recovery or the extent of permanent pathologic damage. The recipient may live a few hours or may remain alive but in desperate condition, as did one of our subjects, for as long as twenty-three days.

Before leaving the consideration of these recipient response phenomena, a late skin observation might be recorded. One of our patients, who lived rather more than three weeks subsequent to transfusion and lysis, exhibited huge urticarial wheals about eight days following the operation. These were very annoying on account of itching; they persisted several days. Their disappearance was followed by extensive skin exfoliation. The picture in all respects resembled that common to specific anaphylaxis, e. g., horse serum. We suggest that these dermal anomalies actually are anaphylactic and specific. Ashby[7] has shown that transfused blood cells may live as long as thirty days; their resistance increases with age, and when certain fractions of serum albumin bathe them. We consider that, even when incompatible blood is transfused, older cells are lysed with more difficulty than are younger cells. As Ashby has shown, in particular circumstances, agglutination may protect from ready hemolysis. It has appeared to us that the primary lysis of transfused blood, in the patient mentioned, was a destruction of younger red cells, or, at any rate, some cells escaped lysis. As time passed, the recipient's serum can be assumed to have developed its lytic ability for red cells to a degree even greater than that exhibited when the cells of the incompatible blood were first introduced. In such event, we regard the late skin changes as representing a lysis of older transfused cells or of such cells as escaped the immediate post-transfusion attack. This second manifestation of lysis represents an anaphylaxis; i. e., specific destruction of the red cells of the donor. We do not consider these phenomena an evidence of an autohemolysin, because there is no proof that the recipient had ever shown such characteristic dermal manifestations during his pretransfusion course; the phenomenon is only evidence of an autohemolysin in the sense that it arose and was exhibited after donor cells had been resident some days in the recipient's serum. This delayed, lytic manifestation assumes the character of anaphylaxis against the donor's cells, which, apparently, have been aroused as a sensitization phenomenon excited by alien red cell proteins accumulating after the first erythrocyte cleavage.

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[7] Ashby, Winifred: Am. J. Physiol. 68: 239 (April), 250 (April), 585 (May), 611, 1924.

Hematologically, the acute lytic reactions are characterized by: delayed coagulation time; lower specific gravity of blood; fall in red cell count to a figure usually lower than pretransfusion count; drop in the leukocyte count, frequently from two to four thousand less than the pretransfusion white blood cell count (this in contrast to the effects on the blood of a successful transfusion, in which event the post-transfusion leukocyte count is usually from two to four times greater than it was before the transfusions); striking reduction in blood platelets; a lowered polynuclear ratio; an increased lymphocyte count, and the early appearance of nucleated cells. If the patient survives the acute lytic response, after twenty-four hours, the red cells begin to increase, the lymphocytes decrease, platelets reappear, clotting time is reduced, poikilocytosis is less marked, and, in the event that one is not dealing with an aplastic bone marrow, blast cells persist or appear. Particularly in the so-called pernicious or hemolytic anemia, in the past, have crises of blast cells been looked on as indicative of an early termination. However, our experience in the treatment of severe anemias by whole blood transfusion leads us to regard the appearance of blast cells following transfusion as a rather favorable omen; the presence of these cells at least indicates that we have to deal with a marrow still capable of red cell manufacture, rather than an aplastic marrow incapable of producing new red cells in an emergency. To be sure, these blast cells are not so functionally efficient as are matured corpuscles; but, in the circumstances, the partially functioning cell is better than no cell.

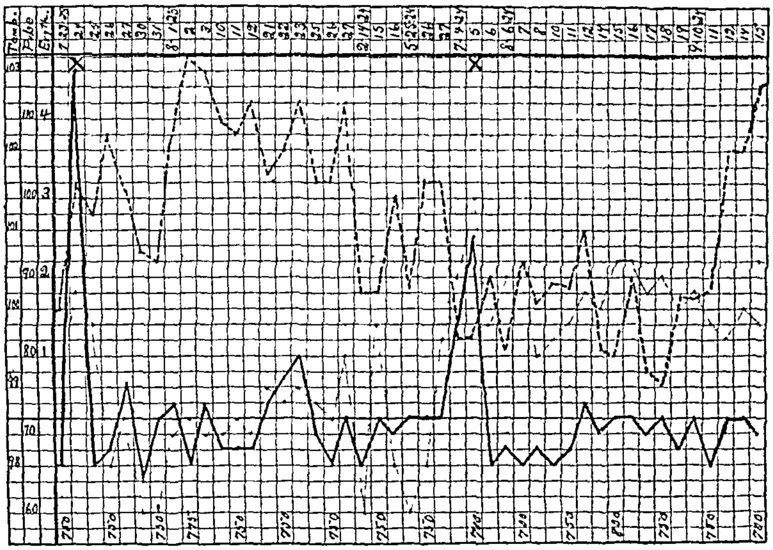

Fig. 2.—Constitutional response and red cell count variations occurring in association with a transfusion of whole blood in a case of hemolytic (Addison's) anemia when Moss Brem groupings were satisfactory but when cross-grouping had not been performed. The absence of reactions at the several other transfusions may be noted. Solid line, temperature; broken line, erythrocytes; dotted line, pulse.

While a successful transfusion is followed by less frequent heart rate, elevation in blood pressure and diminished clotting time, we have observed that, in instances in which the hemolytic crises occurred, there were increased heart rate, a rather sudden drop in blood pressure, lowered leukocyte count and prolonged clotting time. These anomalies occurred even when there was no immediate post-transfusion chill followed by temperature rise. They are most pronounced, however, when the hemolytic response follows immediately on the giving of blood. These post-transfusion phenonmena resemble the Widal crisis[8] of nonspecific shock observed when the barrier of proteopexic function of the liver is lacking or reduced.

2. *Delayed Recipient Responses to Transfusion.*—In this group we class such reactions as do not follow immediately, or within a few minutes after, introduction of donor's blood. This type of response usually appears within from one to four hours after the transfusion. Obviously, the mechanism of this reaction differs from the lytic crisis occurring during or closely related to transfusion. It is difficult to conceive of a condition in which the unsuited blood circulates for more than an hour, and yet, if the mechanism of response is similar to that of our Class 1, the donor's red blood cells are carried about in agglutinated form and yet not broken up. It is an undisputed fact, however, that as much as a thousand cubic centimeters of blood seemingly typed correctly may, in certain instances, be given, the operation finished, the patient apparently greatly benefited, and then this favorable outcome be reversed without warning. The subject then passes through experiences in every way comparable to those observed in the acute "hemolytic" crisis. The following case illustrates the leading features of this delayed response:

A man, aged 59, affected with hemolytic (pernicious) anemia, of Group 4 (Moss-Brem classification), with a temperature of 98.6, pulse 92, respiration 14, was given 750 c.c. from a Group 4 donor, not tested for agglutinin or agglutinogen by cross-grouping. The transfusion was in every way satisfactory until an hour following the operation, when there were sudden, severe rigor and exhausting chills, each chill lasting about thirty minutes; there was no backache or dyspnea, but considerable nausea and great prostration. About two hours following the transfusion, the patient's respiration was 14, pulse 84, temperature 103; there was no blood-derived pigment in the urine. Erythrocytes before the transfusion were 1,064,000; leukocytes, 6,200; after transfusion, erythrocytes, 2,450,000. The condition persisted for several hours; the temperature then fell by lysis during two days; nausea and weakness disappeared, and the white cell count approached pretransfusion figures. Three weeks later, a laparotomy was performed, at which time the gallbladder, appendix and spleen were removed. Our subsequent transfusions were followed by no untoward responses, and the patient rapidly gained strength and vigor. A year later, the erythrocytes numbered 1,200,000; the patient was extremely weak; his heart dilated; there were blood-derived pigments in the urine; constant nausea; albumin and casts in the urine, and the urine output was scant. A Group 4 donor was cross-grouped with the recipient's blood. The cross grouping showed a very slight degree of agglutination of the patient's cells by the donor's serum, but in the emergency, this blood had to be used; 700 c.c. was given. Approximately one hour after what had seemed to be a successful transfusion, a severe chill occurred; it lasted twenty-five minutes and was followed by temperature rise to 100, respirations of 20. No blood-derived pigments appeared in the urine; the erythrocyte count eighteen hours after transfusion was 2,100,000; the general condition was markedly improved. Without further reaction, six transfusions were subsequently given (Chart 2).

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[8] Brown, T. R.: Ann. Clin. Med. 1:380, 1922.

Analysis of this case (typical for the group) demonstrates that the so-called delayed "reaction" is not a hemolytic process, even though, roughly, it resembles such and often is so considered. It differs from a lytic crisis in that the erythrocytes are definitely increased by transfusion and the increase is maintained; blood-derived pigments are not found in the urine; clotting time is not delayed; heart rate is reduced; no petechiae, purpura or oozing from mucous surfaces is observed, and the patient experiences the well-being common to successful blood transfusions after the first twelve hours have passed.

While this recipient's response varies definitely from that due to acute hemolysis, it resembles the manifestation when a foreign protein, as horse serum or other alien albumin, is administered to an individual sensitized to it. Several explanations may be advanced for this type of reaction. It commonly occurs in individuals who harbor bacterial foci (in the biliary tract, lung tissue, wall of the intestine, etc.). In such circumstances, we have considered that these delayed responses represented bacterial cleavage or protein cleavage of damaged tissue at a bacterial focus, caused by the donor's blood increasing the protective, bacteriolytic or protein cleavage power of the recipient's serum. In this event, the reaction appears to be a manifestation of parenteral protein splitting. That something of this nature occurs is demonstrated by rapid healing of the injured tissue or of visible surface foci of infection (varicose ulcers, boils, etc.) following transfusion. Variation in time of appearance of the recipient's delayed response (from one to twelve hours) would seem to indicate that the rate at which bacterolytic or protein cleaving agents accumulate in the blood and of strength to split different strains of bacteria is not fixed. Bacteria may vary in their resistance according to their type, number and locations of growth. If the recipient's serum, previous to receiving fresh normal donor's serum, already contained bacterial lysins, but not of sufficient degree to lyse a considerable number of bacteria, then the addition of a strong lysin, by transfusion, would render effective the combined serums in the recipient more quickly than when a strong donor's serum was added to a recipient serum that was already exhausted by a previous exertion of its lytic power against long established bacterial colonies.

Another explanation of these delayed responses may lie in the fact that, while the combined donor and recipient serum is capable of splitting foreign proteins, such split-products are, in the event that the recipient has normal protopexic liver function, filtered by the liver and do not pass, as partly split protein, to the vascular tree beyond the liver. These split products are disposed of in the normal way. However, should the liver's protopexic function be below normal, the leakage through of various kinds of partly altered protein then results in parenteral cleavage and there occurs nonspecific protein shock (Widal crisis). It would seem possible that the factors of increased bacteriolytic power in the recipient's serum and of deficient liver barrier function may both be present. Certainly, the reaction points to protein cleavage rather than to hemolysis, as shown in the accompanying table.

It was stated that, in the patient cited, the donor's serum slightly agglutinated the cells of the recipient. One might conceive of a condition in which this weak agglutination process gradually took place following the transfusion, and that a subsequent reaction was a cellular lysis. In such event, however, it is difficult to explain why such cell lysis was not followed by the appearance of blood-derived pigments in the urine, in the duodenal extracts or about the peripheral capillaries. Moreover, in this type of reaction, increase in the red cell count following transfusion is maintained, and capillary embarrassment with transudation or purpura is lacking. The patient has no abnormal peripheral sensations or cerebrospinal manifestations. He does well clinically. Indeed, in some instances, this type of reaction seems necessary before the patient regains strength and vigor. From experience, we have come to regard these delayed reactions as conservation phenomena; in special instances, we look for them with the expectation that, after they have occurred, the patient will make a more rapid recovery. In two cases of marked anemia, due to sepsis following abortion, the first three transfusions were followed by delayed reaction of the type described. The subjects improved progressively with each transfusion, despite the shock. Following the fourth transfusion, no untoward symptoms appeared and both patients progressed to an uninterrupted and complete recovery.

However, these delayed recipient responses may be productive of serious consequences. If, previous to the transfusion, there were already present renal insufficiency, cardiac dilatation and myocardial degeneration, with low diastolic blood pressure or alimentary tract disturbances, the shock of the delayed response, together with the necessity for the elimination of toxic by-products of protein cleavage, may lead to fatal termination by exhaustion, heart embarrassment (seemingly of central origin) or to an uremia-like syndrome. One of our patients well illustrates this:

> Three whole blood transfusions, at five-day intervals, were in every way successful, and increased the patient's red cell count from 799,000 to 3,900,000. Each successful transfusion was accompanied by increasing tenderness about the gallbladder and bile ducts, and by slight diarrhea. The renal output was maintained, blood-derived pigment never found, but all specimens exhibited albumin and casts. A fourth transfusion produced what appeared to be marked irritative biliary tract signs accompanied by a scanty urine output, albumin and casts being excessive. Within eight hours following the transfusion, the temperature rose, pulmonary and localized cerebral edema appeared, with delirium; death occurred as the result of urine suppression and respiratory distress seemingly of bulbar type.

Summary of Data Concerned with Four Reactions Subsequent to Transfusion of Whole Blood

					Before Transfusion			After Transfusion				Before Transfusion		After Transfusion	
Diagnosis	Age	Previous Transfusions	Group	Group of Donor	Temp.	Pulse	Resp.	Temp.	Pulse	Resp.	Amount Transfused, C.c.	Erythrocytes	Leukocytes	Erythrocytes	Leukocytes
1. Hemolytic anemia..........	59	0	4	4	98.6	92	14	103	84	20	750	1,640,000	6,200	2,450.000	5.500
2. Hemolytic anemia..........	..	9	4	4	98	90	20	100	94	20	700	1,200,000	......	2,100,000	......
3. Hemolytic anemia..........	45	4	4	4	100	92	28	101.6	120	36	700	2,130,000	19,450	3,150,000	16,500
4. Chronic diffuse nephritis....	64	2	4	4	98	70	18	99.6	70	18	750	4,000,000	7,000	5,000,000	5,100

At no time did this patient exhibit icteroid coloring or blood-derived pigment in the urine or stools. Here, transfusion was successful as a procedure, but the renal elimination of toxic products and the effect of these toxic products in the capillary circulation led to death at a time when the outcome seemed bright.

3. *The "Constitutional" Recipient Response.*—If carefully observed, practically all transfusions are accompanied by a febrile rise of varying degree. The temperature ranges from 100 to as high at 105. The rise occurs within three hours following transfusion and may be maintained for as long as three days. Apart from fever, the patient has no particular discomfort, nor does he exhibit signs suggesting blood destruction even of slow but constant degree. In a patient, who previous to transfusion has no cardiovascular-renal, cord or organic alimentary tract dysfunction, such constitutional reaction has relatively little significance.

Its mechanism is difficult to explain. In the absence of evidences of blood destruction, we have felt that the recipient's responses were caused by bacterial lysis, by the splitting up of some unassimilable serum protein or protein derived from the site of unobtrusive, but nevertheless present points where there was damaged tissue. Only rarely, in this form of reaction, have we found blood-derived pigments in the urine or feces. The red cell count is well maintained. If such reaction occurs, however, in a patient who has liver, kidney or heart damage, in which condition there may be low functional reserve, the transfusion directly may precipitate embarrassment in vital organs and be accompanied by death or at least long continued illness.

We would emphasize the necessity for carefully observing for from two to four days these patients in whom the blood transfusion has seemed successful. If careful observation is carried on, the sudden and unexpected appearance of heart, kidney, liver or respiratory embarrassment will not occur. General and medicinal measures may be instituted before a uremic state or heart failure appears. When evidences of lowered capacity of essential organs is present, further transfusion should be postponed until conditions have approached normal. Certainly, in this type of case, further transfusion should be interdicted so long as the patient is febrile, has nausea and vomiting, is difficult to feed or has the products of blood destruction appearing in definite or increasing quantity in his urine. If transfusion is performed in the face of these cautions, whatever chance of recovery the patient may have had is likely to disappear.

MEANS BY WHICH HARMFUL POST-TRANSFUSION SEQUELAE MAY BE AVOIDED

(*a*) *Blood Typing.*—Our experience emphasizes the necessity for cross grouping of recipient's and donor's blood if one is to avoid the acute or the delayed post-transfusion reactions. We are fully in accord with the observation of Guthrie and Huck. While the four-group classifications of Moss and Brem may prove clinically reliable in the majority of transfusions, yet one can never feel confident that bloods typed by such a method can be mixed safely. Particularly when patients have been transfused frequently, and numerous donors have been employed, is it necessary to regroup bloods at every transfusion, and in all instances to cross-group the blood. The four post-transfusion reactions (Fig. 3) occurred in a series of 106 transfusions recently performed by one of us (R. A. K.). All of these reactions occurred before we adopted cross-grouping of donor's and recipient's blood as a routine, and supplementary to typing by Vincent's microscopic method. A later series of fifty-four transfusions in which bloods were cross-grouped was followed by no reaction.[9]

Certainly, selecting donors without cross grouping makes blood transfusions a hazardous clinical procedure. Unquestionably, many of the untoward sequelae of transfusions reported in the literature have been due to clinicians having placed too much reliance on the four-group method of typing. It is these unfortunate transfusion sequelae that have caused blood transfusion to fall into disrepute in certain quarters.

(*b*) *Whole Blood Versus Citrated or Otherwise Altered Blood.*—There seems to be no reason why, if proper apparatus and sufficient technical skill are at hand, anything but whole blood should be employed in transfusion. The plea of expediency and speed should be no excuse for the uses of blood altered by the addition of various salt solutions. If transfusion is really needed to insure clinical benefit to a patient, blood in its most efficient biologic form should be employed and the operation of transfusion should be carried on with the greatest care. Here is not the place to discuss the various forms of mechanical aids to transfusion or to quote statistics showing the advantages of whole blood over citrated or otherwise altered blood. We have already stated above why statistical comparisons in blood transfusions are of little value. Certainly, our experience indicates that the use of whole blood, properly typed, insures fewer post-transfusion reactions and greater clinical benefit than by the employment of citrated, salted or blood otherwise changed. Less than 4 per cent. of reactions of any kind have followed the use of whole blood.

(*c*) *Anaphylaxis and Protein Shock.*—These terms have been employed loosely with regard to post-transfusion reaction. We have already emphasized some of the possibilities for confusion. Many of the so-called "anaphylactic reactions" accompanying blood transfusions are really protein shock, i. e., due to nonspecific protein, and in such event no previous sensitization is necessary. Anaphylaxis was not observed in any of the four post-transfusion reactions occurring in our last 106 transfusions. Several of the patients in this series have received from ten to sixteen transfusions. Passive anaphylaxis[10] may be avoided by questioning and examining the prospective donor for the transfusion. Ramirez[11] records an instance in which positive sensitization to horse hair protein occurred following donation of an asthmatic's blood. In our four post-transfusion reaction there was a diminution in leukocyte count, a clinical phenomenon highly suggestive of Widal crisis. Such phenomena emphasize the necessity for considering certain reactions as being possible when the diminished proteopexic liver function permits leakage of circulating proteins through the liver, with subsequent parenteral cleavages of such proteins.

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[9] A very simple method of cross grouping that we have found practical is as follows: About 1 c.c. of blood is withdrawn by means of a fine needle from a vein of the donor and recipient, and each added to an equal amount of physiologic sodium chlorid solution to which a few crystals of sodium citrate have been added. These are centrifugalized. The supernatant fluid is then withdrawn by a pipet into other containers and each labeled. Two or three drops of this supernatant fluid is placed on one glass slide. To this is added, by means of a platinum loop, a loopful of the cells of the patient's blood. These are agitated by the platinum loop to mix the two thoroughly. Then to a few drops of the patient's serum is added, in a similar way, cells of the donor. If agglutination takes place at all, it usually is within a minute (Fig. 3). Warming the slide to body temperature will hasten any possible agglutination. The cells are then examined microscopically. We have very frequently noted agglutination, in instances in which the blood of both the patient and the prospective donor were separately typed as Type 4.

[10] Boughton, T. H.: J. Lab. & Clin. Med. **5**: 597 (June) 1920.

[11] Ramirez, M. A.: Horse Asthma Following Blood Transfusion, J. A. M. A. **73**: 984 (Sept. 27) 1919.

(*d*) *Pigmy Transfusion.*—If an ailment or an accident calls for blood transfusion as an emergency measure and test serums are not available or are dubiously reliable, serious immediate or delayed post-transfusion responses may be avoided by intravenous or intracutaneous injection of small blood volumes taken from prospective donors.

Following the intravenous introduction of from 15 to 30 c.c. of incompatible whole blood, the subject exhibits mild sensations of peripheral skin discomfort, is restless, may be somewhat dyspneic, has slight chill, and may perspire locally about the forehead or feet, or in the axillae or palms of the hands. Temperature observations disclose elevations of from 1 to 3 degrees F., the rise being rapid, the fall by lysis within six hours. Nausea and, rarely, vomiting may occur. The inconvenience is not great, however, and the response is so acute that such pigmy transfusion is of practical value and its employment is justified. In instances of severe blood dyscrasia, when numerous transfusions have been made previously or in advanced cachexia, the responses to pigmy transfusion of whole, incompatible blood, whether it be introduced into areolar tissue or into the veins, the local or systemic "reactions" are apt to be not so pronounced as when the test is given to subjects who are affected with secondary anemia. This applies, even though in each group of patients, the blood counts are closely approximate.

(*c*) *Indications.*—Blood transfusions should be made with extreme caution and only in dire emergencies when subjects exhibit pulmonary or cerebral edema; when the renal output is low, and the urines contain albumin, casts or blood; when deficient cardiac strength has resulted in persistent peripheral edema, or where myocardial weakness admits but little added stress. In such instances, the transfusion of compatible blood may precipitate an acute, fatal crisis; the use of incompatible blood is commonly followed by cerebral, cardiac or renal failure, or rapidly increasing pulmonary edema literally drowns the patient. Post-transfusion and visceral edema may lead to exhausting diarrhea or vomiting; not rarely this has been considered central in origin. It is difficult or impossible to control. Certainly, previous to blood transfusion—whether whole or modified blood is used—the efficiency of the heart and kidneys should be determined and careful physical examination should exclude cerebral, pulmonary or splanchnic zone edema. If the examinations disclose any of these dysfunctions, then transfusion should be postponed until, by rest, diet or medicinal agents, the situation has changed. When untoward post-transfusion phenomena appear (tight skin sensations, restlessness, air hunger, pink flush to body surface, cough, etc.), knowledge that the physiologic upset attacks first the circulation at its capillary bed, demands the prompt exhibition of epinephrin. Fifteen to thirty drops of the 1 : 1,000 solution, diluted with 30 c.c. of physiologic sodium chlorid solution, should be given slowly into a large vein. The embarrassed condition of the capillary bed contraindicates small doses of epinephrin administered subcutaneously or intramuscularly; such are not effective anywhere but locally, at the injection site. The epinephrin solutions may be given as frequently as at half hour intervals, depending on their action. It is our opinion that, as knowledge of the vascular crisis in the acute post-transfusion reaction has been previously indefinite, the dosage of epinephrin has been too small to be effective. Digitalis and other heart stimulants are usually not useful (although they are employed quite generally) unless epinephrin is also given. When it appears that the acute distress has passed, then blood clotting is aided by intravenous injection of from 10 to 20 c.c. of 1 per cent. calcium chlorid solution as frequently as every four hours for at least six injections. Within twelve hours following the transfusion reaction, stimulation of renal function should be attempted by the intravenous exhibition of 10 grains (0.65 gm.) of caffein sodium benzoate at six hour intervals, or, if there is no gastric upset and nourishment is being taken without nausea or vomiting, 15 grains (1 gm.) of theobromin sodiosalicylate every eight hours. Fluids should be given by mouth in moderation; too often they are pushed in the endeavor to wash out an accumulation of toxic products of hemolysis. This is an error: the reaction has already rendered peripheral tissues very edematous; the blood is more than ordinarily fluid and its clotting time prolonged. The object of diuretics should be to stimulate an edematous kidney first, to free itself of its own fluid excess, and then to excrete the increased tissue edema so generally present in this acute vascular crisis. Pushing fluids only throws an added burden on kidneys already seriously taxed.

SUMMARY

1. If whole blood is employed in blood transfusion and if donor blood is carefully selected, post-transfusion reactions are relatively rare: less than 4 per cent. in our series.
2. Post-transfusion effects of a harmful type may be minimized if donors are selected not only with respect to their place in the arbitrary four group classification of Moss, but when donor and recipient bloods are cross-grouped for estimation of their agglutinin-agglutinogen content.
3. There are three types of post-transfusion: the immediate or hemolytic, the delayed, apparently not hemolytic but proteolytic, and the constitutional or nonhemolytic.
4. The subjective and objective phenomena of hemolysis can be explained by the effects of lysed blood on the peripheral capillary bed. The mechanism of this capillary response is similar in kind, but greater in intensity, to peripheral vascular phenomena observed in Raynaud's disease, purpura, etc.
5. The nonfulminant and delayed post-transfusion reactions are caused by anaphylactoid protein phenomena, but not necessarily of specific nature.

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ABSTRACT OF DISCUSSION

DR. F. W. HARTMAN, Detroit: We would suggest an additional group in the types of reactions mentioned by Dr. Smithies; that is, atypical anaphylactic attack with swelling of the face, cyanosis and difficulty in breathing during the transfusion or within a five minute period following transfusion. We have seen such a reaction four times in a series of approximately 300 cases, and it is almost immediately relieved by the administration of epinephrin. The hemolytic reaction should no longer, we believe, be considered when speaking of blood transfusion reaction, since the usual typing of the blood and cross agglutination of the patient's and donor's blood will eliminate the possibility of this occurring. All other types of reaction, occurring within a one hour to three hour period after transfusion, should be grouped together, since they are probably manifestations of the same factor or factors, whatever this may be. It seems that these factors are definitely associated with the transfused blood coming in contact with foreign material. In this connection we recall the work of Novy, who showed that blood withdrawn from a guinea-pig and allowed to come in contact with inert foreign substances and again injected often produced a fatal shock. In using citrated blood there are two other possible factors; namely, the citrate itself and the water with which it is made up. Huntoon has shown how important the water factor is in his work on pneumococcus antibody solution. A factor that has seemed of some importance is the marked rouleau formation which we sometimes see in cross agglutination. We have felt for several years that this was possibly a type of incompatibility, and, by eliminating donors which show this rouleau formation with the patient's blood, we have been able to cut our reactions with the citrate method to about 10 per cent. In a personal communication, Dr. Longmire of Texas tells me that in a series of 150 cases done with the citrate method, taking this precaution about rouleau formation, he has not had a single case showing chills. The shock occasionally associated with the rapid administration of a direct transfusion should not be included as a transfusion reaction but should be kept in mind. We recently saw a patient with mitral and tricuspid stenosis who died with acute pulmonary edema within the twenty-four hour period following such a rapid direct transfusion. With citrate transfusions, such shocks may be avoided by using a small needle and spreading the administration of the first 100 c.c. over a longer period of time.

Dr. Henry F. Stoll, Hartford, Conn.: A factor that has not been mentioned is the use of apparatus that is not perfectly clean. Repeatedly, after apparatus has been given me as ready for use, on further rinsing with ether, a considerable amount of foreign material (dried blood) has been obtained. Unclean apparatus unquestionably contributes to reactions that, while not of the serious type, are, nevertheless, very unpleasant for the patient. In regard to avoiding the immediate reactions, due to improperly matched bloods (and incidentally the man doing the transfusion should either perform his own blood matching or confirm the grouping), if the first 20 c.c. of blood is injected very slowly, as can be done if a little 2 per cent. citrate or physiologic sodium chlorid solution (5 c.c.) is added to the first syringeful, the early signs of incompatibility are immediately recognized and the injection is stopped before harm is done. The rapid introduction of a large amount of blood is always accompanied with some hazards. Chemically pure citrate made with freshly distilled water can be excluded as a cause of reactions. I have injected a buffered solution of sodium citrate that has a p_H value of 7.6 or 7.8 for the relief of pain of thromboangitis obliterations upward of 200 times, and I have never yet had a single reaction although more citrate is given than in an ordinary transfusion. Dr. Stokes at the Mayo Clinic showed that certain brands of rubber tubing contained toxic properties when new unless they were soaked in a solution of sodium hydroxid before use. The direct (syringe-cannula) method gives fewer reactions than the citrate method, but it isn't the citrate as much as it is the manipulation and chilling of the blood and the use of improperly cleaned apparatus.

Dr. Andrew A. Eggston, New York: I believe that the one who does the transfusion should be responsible for the typing of the bloods. The typing serums, unless frequently controlled and properly preserved, may be a source of error. I always preserve the type serum in sterilized and sealed vaccine ampules. In this way they will keep almost indefinitely. A new ampule is opened each time a typing is done. Cross typing is always done before a transfusion. I do not think that rouleau formation of the red cells, spoken of by one of the previous speakers, has very much relation to the reaction. Rouleau formation to a certain extent depends on the solution in which the red cells are suspended for the typing. If blood is collected in a citrate solution, rouleau formation is more frequent than in a physiologic sodium chlorid solution. I have used donors who have shown rather marked rouleau formation on cross typing, with no distinct harmful reaction. Outside the very serious reactions that occur in transfusions, the temperature reaction may be overlooked as they have therapeutic value, particularly in infectious cases. Nonspecific proteins are used in many infections to produce reactions in the treatment, with good results. Therefore they may be minimized following transfusions, particularly when only a mild elevation of temperature occurs for a few days. The very severe reaction should be avoided, if possible. No doubt certain physical conditions of the recipient are likely to account for some serious reactions. I refer to pulmonary edema in cases of fatty degeneration of the heart that occurs in pernicious anemia. Likewise, in chronic nephritis, transfusion should be done with great caution. In considering the method of transfusion, experience is a determining factor. Formerly we used the citrate method, but now we use a direct method. In all, we have done between 700 and 800 transfusions. The direct method is certainly a much nicer technic and distinctly more surgical. The blood must be delivered very quickly, and a great deal more time and skill are required to master the technic. On the other hand, the citrate method should not be condemned altogether because there are many localities where physicians do not perform enough transfusions to master the technic of the direct transfusion, and the citrate method is certainly a good substitute.

Dr. Martin L. Janes, New York: Two points must be considered in every transfusion so far as its successful outcome is concerned; that is, first, the proper grouping by the person who is to do the transfusion. That person's mind and judgment should be trained to form conclusions regarding the proper matching that is done on the slide or under the microscope. The second major point in the technic of the performance of a blood transfusion. There is no question of the fact that physiologic sodium chlorid or citrate solutions do contribute to the possibility of post-transfusion reactions. The ideal method of transfusion, without any doubt, is one that transfers the blood as rapidly as possible without the introduction of any foreign material whatever. It was with this idea in mind that, about five years ago, I presented an apparatus in which two syringes were employed, one filling while the other one discharged, and vice versa, so that there was a continuous flow of blood provided between the donor and recipient, without the necessity for the introduction of any foreign material. In a series of 260 consecutive cases of blood transfusion that I have performed since in various hospitals in New York, I have had not a single reaction, and the only reason for these results is the fact that I have personally supervised the matching of the bloods and also because of the smooth technic in the transference of the blood. An ideal method of transfusion is one that transfers the blood rapidly with the least exposure of the blood to any extraneous material and the least amount of time in which that blood remains outside the blood vessels.

Strabismus Among School Children.—In the course of some 12,000 examinations of school children of all ages in Nassau County, N. Y., New Castle County, Del., Porter County, Ind., Frederick County, Md., and Spartanburg and nearby mill villages in South Carolina, made by officers of the U. S. Public Health Service, 0.9 per cent. were observed as having strabismus. About four fifths were internal and one fifth external in type. The strabismus rate for girls is slightly higher than for boys when all ages are considered together. The percentage of children who have external strabismus is practically constant throughout the school ages, showing possibly a slight tendency to increase. On the other hand, internal strabismus is much more prevalent among children under 12 years than it is among older children. At Gary, Ind., the strabismus rate was 1.3 per cent. among 994 children under 2 years of age, and 2.4 per cent. among 3,125 children from 2 to 7 years of age. The association of strabismus with diminished visual acuity is quite definite. The rates increase regularly from 0.13 per cent. for children with normal visual acuity to 8.11 per cent. for those with vision of 20/70 or worse in one or both eyes. The difference between these rates, 7.98 ± 2.14, is significant, being more than three and one-half times its probable error. Of more importance, perhaps, is the fact that the increase in the strabismus rate as visual acuity decreases is regular for both boys and girls. The percentage of children who have strabismus increases as visual acuity decreases, even among the children who have approximately the same acuity in the two eyes.—Collins, S. D.: *Pub. Health Rep.* **40**:1516 (July 17) 1925.

UMBILICAL HEMORRHAGE ACCOMPANIED BY DEEP JAUNDICE

REPORT OF A CASE IN A BABY, AGED TWENTY DAYS

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This case is reported because the cause of the hemorrhage and jaundice could not be ascertained, and because the results of blood transfusion and roentgen irradiation were of interest.

Clinical Course.—Baby G., a boy, born spontaneously at the private maternity department, Philippine General Hospital, Dec. 28, 1924, weighed approximately 7½ pounds (3.4 kg.) and presented nothing unusual except a large, thick cord which the nurse was obliged to tie with three tapes. The infant nursed well and the mother had plenty of milk. On the second day, he became yellowish. On the fifth day, white spots appeared on the tongue and the buccal mucous membrane, and blisters, filled with yellow serum, appeared on the buttocks and upper parts of the thighs. The urine also became yellow. There was no fever. The blisters healed after treatment for one week with zinc oxid ointment and powder. The cord fell off on the twelfth day, leaving the umbilicus dry and well healed. The white coating of the tongue, common among the babies born in this ward, was removed daily by the nurse with cotton or gauze wet in weak potassium chlorate solution. After three days the mouth, tongue and lips became livid. Occasionally after nursing the baby ejected about one teaspoonful of red-tinged milk. The raw appearance of the mouth was attributed to too vigorous cleansing.

The child seemed to be normal except for the jaundice, yellow urine and red mouth. On the nineteenth day, however, the baby lost his voice. Efforts to make him cry caused only a grimace, without sound. The previous night the mother could not make him nurse; at midnight he had uttered a sharp cry, after which he slept and could not be awakened. Believing the child to be suffering from infantile beriberi (the mother was weak and anemic), I gave him tiquitiqui extract[1] hypodermically and by mouth.

The next day, the twentieth day of life, the cord dressing was found to be slightly stained with blood—the first stain seen since the cord fell off—and a dark blue spot formed on the left arm. Epinephrin solution, applied to the umbilicus, stopped the bleeding. The following day, the cord dressing was again stained with blood. The baby was given, intramuscularly, 5 c.c. of horse serum with 2 drops of epinephrin. However, big dark blue patches formed on the back of the chest. The cord dressing was changed daily and the blood stain increased more and more until the night of January 11, the twenty-fourth day since birth, when the bleeding from the umbilicus was profuse and could not be controlled by pressure, epinephrin, ferric chlorid or silver nitrate.

For want of surgical facilities in the patient's home, I controlled the alarming hemorrhage by clamping the umbilicus together with the surrounding skin. About one hour later, one tube of a proprietary hemostatic horse serum preparation was injected intramuscularly.

The next morning, the spleen and the long bones of the lower extremities were exposed to roentgen irradiation (from 75,000 to 80,000 volts) for one minute at a distance of 6 feet by Dr. Fernandez of the roentgen-ray department, Philippine General Hospital. Ten cubic centimeters of whole compatible human blood was injected intramuscularly, and, in the afternoon, Dr. J. Estrada injected in the median basilic vein, by the open method, about 75 c.c. of citrated blood. The effect of the transfusion on the color and appearance of the baby was marked. The roentgen-ray treatment of the long bones of the upper extremities was resumed five days after the first exposure. After the blood transfusion the baby was given, intramuscularly, every day for one week, from 8 to 15 c.c. of whole human blood. During this time, new dark blue blotches developed on the legs, the back of the hands, and the dorsum of the feet. The old patches became resorbed. The jaundice persisted, and bile pigments were found in the urine. The stools were regular and of normal yellow color.

Twelve hours after its application, the clamp on the umbilicus, which was long and cumbersome, was removed. Blood gushed out in the short interval until a shorter clamp could be applied. Two days after the application of the clamp, the surrounding skin became red and swollen. Dressings wet with hot aluminum acetate solution were applied. The inflammation was much improved the next day, but the clamp became rusty and was taken off, and a ligature of tape was substituted. The skin at the site of the clamp broke off and showed slight oozing of blood partially controllable by the application of ferric chlorid. The stump was black and gangrenous.

On the seventh day after the blood transfusion, the bleeding around the stump was so free that a purse-string linen suture was tied around the umbilicus. This controlled the bleeding. The stump had already sloughed up. The next day, the eighth day since the first blood transfusion, 120 c.c. of citrated blood was injected in the median basilic vein by Dr. Estrada. Two days after the application of the purse-string suture, the skin within the ligature came off, leaving a raw surface which was not bleeding. However, on the fourth day after the second transfusion, the bleeding from the raw surface was somewhat profuse so that 150 c.c. of citrated blood was injected in the saphenous vein, and bleeding from the umbilicus ceased.

On the fourth day after the third transfusion, the umbilicus began to bleed again. The stools and the secretion from the mouth were tinged with blood. The jaundice became deeper. Fresh cephalin, especially prepared by the Bureau of Science, was applied over the umbilicus, and partially controlled the oozing. The next day, serum from an eclamptic patient was applied locally and proved a more efficient styptic than cephalin. A daily intramuscular injection of 5 c.c. of Witte's peptone was begun on the same day. However, the tendency of the umbilicus to bleed increased daily, and neither the cephalin nor the serum from an eclamptic patient controlled the continuous oozing. On the eighth day after the last transfusion, 200 c.c. of citrated blood was injected in the other saphenous vein. The umbilicus had healed rapidly so that the raw surface, which had been bigger than a silver dollar, was reduced to the size of a quarter. Again, Dr. Castillo irradiated the spleen for five minutes and the long bones for four minutes, using 90,000 volts at a distance of 8 inches.

Much hope was entertained for the child's cure, but again on the fourth day after the last transfusion, the umbilicus, which was almost completely healed, resumed bleeding. At the same time, the right thigh at the site of the intramuscular injection of blood, made seventeen days previously, became swollen and red, denoting the development of suppuration. On the seventh day after the last transfusion, the baby became restless and uttered shrill, piercing cries, which were thought to be due to the condition of the thigh. Dr. Estrada removed about 20 c.c. of blood and later 10 c.c. of pus by aspiration. Within a few minutes, the right knee became swollen and black and the transfusion wounds of both thighs and one of the arms showed bleeding. The umbilicus had more active oozing, which could not be stopped by either cephalin or blood serum; but the site that bled the most and which was beyond control was the site of puncture of the aspirating needle. A few hours after the aspiration, the baby again uttered shrill, piercing cries. An internist who heard the cry suspected it to be of cephalic origin caused, probably, by hemorrhage in the brain or meninges. In less than twenty-two hours after the puncture of the abscess, the child died of exsanguination at the age of 1 month and 22 days.

Family History.—The mother and her family give no history of hemophilia. The father, a sister and a brother of the baby are bleeders. The father has occasional nosebleeds. The eldest brother, after the extraction of a tooth, had a hemorrhage that endangered life. One sister developed black and blue spots on the skin after slight trauma. The father had a negative Wassermann reaction.

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[1] A local name for extract of rice polishings.

COMMENT

The jaundice appeared soon after birth and gradually grew in intensity until death. The urine and the serum under the blebs were deep yellow, an indication of hemolysis. No improvement was noticed as a result of the roentgen-ray treatment. The coagulation time and platelet count were not determined, but blood that had oozed out and had been undisturbed for more than seven hours was found to be liquid. After each transfusion, bleeding of the umbilicus practically stopped; but at the end of from four to five days, the bleeding recurred. Finally, diffuse bleeding from the mucous membranes of the mouth and intestines occurred.

DIAGNOSIS

The intense jaundice of the skin suggested the possibility of an obstruction in the bile ducts, but the stools were of normal color. In hemorrhage of the new-born, the bleeding occurs early, usually in the first week, and there is no history of bleeding in the family. Since the bleeding occurred in the first month, the coagulation time was much delayed, and since the disease appeared to be inherited, hemophilia was strongly suggested to us. However, hemophilia is a hereditary blood dyscrasia manifested by members of the male sex but transmitted only by the female members. The bleeders in the family of this infant were on the father's, not the mother's, side of the family. In purpura hemorrhagica the coagulation time is normal. In icterus gravis as described by Pfannenstiel,[2] there is "early jaundice increasing in intensity, absence of fever, presence of bile pigment in the urine, normal appetite, disposition to screaming and absence of acholia in the stools" and a tendency to umbilical hemorrhage. All of these symptoms fit the manifestations of our case.

ETIOLOGY

My impression is that the hemorrhages and the blebs were independent. In the maternity ward where this baby was born, a large percentage of the babies became affected with this pemphigus-like eruption, but no other infant had any complication nor did any of the infants, including our patient, have fever. The eruption in every case yielded easily to treatment with zinc oxid. The bleeding commenced eight days after the blebs had become entirely healed and dried up.

The father's Wassermann reaction was negative, and the obstetric history of the mother presents no indication of syphilis.

TREATMENT

The benefit of the first transfusion was marked, but the transfusion was effective only from four to five days. It is known that the life of the platelets is from three to five days. It is presumed that, at each transfusion, enough sound platelets were introduced to establish sufficient prothrombin to make the blood normal; but as soon as the foreign platelets died the old tendency to bleed returned. If this observation is correct, the proper treatment would be to try to enable the patient to manufacture prothrombin of normal quality and quantity, or if the cause be infective agents that destroy the normal prothrombin, to eradicate this factor.

The roentgen rays are believed to stimulate the blood centers, such as the spleen and bone marrow, and to increase the coagulation of the blood, but, to our disappointment, in this case irradiation did not bring about the desired result.

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[2] Pfannenstiel, cited by Von Reuss, A. R.: The Diseases of the New-Born, New York, William Wood & Co., 1921.

RECURRENT DISLOCATION OF THE SHOULDER JOINT [*]

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Recurrent dislocation of the shoulder joint has excited considerable discussion in this country in recent years, and in consequence there is much less tendency to discuss different causes and the different operations based on these causes. It may fairly be said that the nonoperative treatment, by braces, offers practically no relief, and that the operative treatment is confined almost entirely to methods of contracting the axillary portion of the capsule. The employment of a portion of the deltoid muscle as a flap passed under the humeral head as a sling support to prevent its escape from the socket has earned the right to be considered among the available methods of treatment. As much can hardly be said for dividing the muscles in the axillary folds to overcome their supposed effect in pulling the humeral head from its socket or glenoid cavity.

The advocate of any particular view as to the pathologic condition should offer not extensive argument but the results of treatment based on that point of view. Because of its reported results, operation to contract the axillary part of the capsule has become almost the only one performed at the present time. Without going into an extensive discussion of the subject, I would merely express the opinion that the passing of a flap of the deltoid muscle under the head and neck of the humerus, close to the axillary portion of the capsule of the shoulder joint, prevents further recurrences of the dislocation, or reduces their frequency, not by the support afforded the humeral head by the small portion of the deltoid, but by the cicatricial contraction of the axillary portion of the capsule. This results from the free exposure of it rendered necessary for passing the deltoid flap around it, and from the subsequent healing of the bared capsule in its wrinkled and folded condition which results from the Velpeau or adducted position in which it is bandaged.

I have developed at length the pathogenesis which I accept but can now refer to it in only a summary manner. I have referred to the all important abnormally relaxed axillary portion of the capsule as a hernial pouch which must be removed for a radical cure, and to this pathology I still adhere. But a few lines may be permitted for an attempt to account briefly for the hernial pouch. A dislocation is merely a fracture of the skeleton at a joint with displacement of the fragments, the fracture consisting in a tearing of the axillary portion of the capsule (Fig. 1 *B*). A similar but milder capsule tear without dislocation occurs in a sprain, or as great a tear when a dislocation and spontaneous reduction occurs. The cause is the extreme movement of abduction from a force beyond what the ligament will withstand. These joint ligaments are as strong as or stronger than the bones between the joints, as is shown by the fact that fractures of the surgical neck of the humerus are much more frequent than dislocations of the shoulder, at least if we disregard the unknown number of dislocations that become spontaneously reduced. The same thing is true at the elbow.

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[*] Read before the Section on Surgery, General and Abdominal, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[*] Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

Dislocations there, while common, are not nearly as common as supracondylar fractures of the humerus.

Hyperabduction at the shoulder joint in the cadaver with sufficient force always results in a typical anterior or subcoracoid dislocation, never any other kind. Practically all dislocations of the shoulder joint in life are anterior or subcoracoid. Therefore, hyperabduction is the cause of this dislocation. If one objects to such simple reasoning, let us ask, Did any one ever offer better evidence for any other mechanism, or as good? The most generally accepted fracture mechanism is that of Colles' fracture. Did any one ever prove that Colles' fracture is due to the fall on the hand? If so, how? Does any one deny this mechanism today? The same questions may be applied to Pott's fracture or any other fracture or dislocation, so far as establishing its mechanism is concerned. I now wish merely to justify as well as I can, briefly, my assumption that the typical and common anterior dislocation is due to hyperabduction.

NATURE OF ANTERIOR DISLOCATIONS

Normal abduction is limited primarily by the axillary portion of the joint capsule. Hyperabduction tears it, and if the force is great enough, turns the head out of the socket into the axilla, the torn capsule margins being pushed apart to permit so much displacement (Fig. 1 *B*). After reduction, the margins of the tear become approximated, and with the arm at the side of the body the torn region of the capsule becomes shortened by folding on itself, so that if the arm remains in this position until the torn capsule margins become reunited by cicatricial tissue, the whole axillary portion of capsule in its folded condition becomes involved in the cicatricial tissue and consequently shortened, resulting in limited abduction and external rotation, and in the early stages pain on abduction (stiff and painful shoulder). But if the arm is carried forcibly into abduction before the cicatricial healing is strong enough to resist stretching of the scar, with or without slight tearing of this new cicatricial tissue, a new dislocation develops from a degree of force much less than necessary to produce the first dislocation. Repeated dislocations prevent the contraction of the capsule to or within the normal length, and this abnormally lengthened capsule permits easy recurrence without fresh tearing, so that on reduction, no reparative inflammation follows and consequently little or no pain or disturbance of motion.

If the capsule has been contracted by operation, a new dislocation can follow from sufficient force, but only with the production of a new tear of the axillary capsule with consequent reparative inflammation and new cicatricial tissue about the tear. If, after the reduction of the new dislocation, the arm is kept at the side for four or five weeks again, the cicatricial tissue produced by the operation will be added to or reinforced, and a new dislocation rendered almost impossible without a second operation. This is the point which I would most emphasize in this paper; i. e., that if a recurrence should follow operation, a second operation will not be necessary in a nonepileptic patient, because the new tear and the consequent new cicatricial tissue with the arm fixed in the Velpeau position for four or five weeks will make the axillary portion of the capsule much stronger than the repair from the operative scar tissue did. One need not be concerned about stiffness of the joint afterward. A slowly returning motion makes a stronger joint than a rapidly returning motion.

TREATMENT

No operation yet reported, except those affecting the bones, has shown itself proof against failures, but capsulorrhaphy has come nearer to such a result than any other. According to my interpretation, my results to date show that it offers close to 100 per cent. cure of the dislocations, and close to 100 per cent. functional results in nonepileptic patients. In only one case was a second operation done, and in only three were the dislocations not stopped. These were the only patients who could not be controlled and who consequently did not follow instructions after operation. In a nonepileptic patient, a dislocation following operation is *an advantage, not a disadvantage in that particular case.* An inguinal hernia recurring after operation cannot be cured without another operation. A shoulder dislocation recurring after a capsulorrhaphy can be cured probably more certainly, and surely more safely, without a second operation than with one. If the capsule repaired by the operation is not as strong as normal or as strong at least as is necessary for the needs of that particular patient, then the quicker another dislocation takes place, the better for that patient.

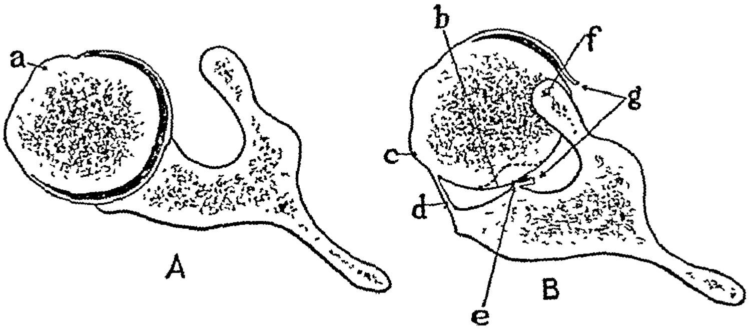

Fig. 1.—*A*, diagrammatic transverse section of skeleton of left shoulder joint at about its middle *B*, same parts in the position of an anterior or subcoracoid dislocation, showing the anterior portion of the capsule torn at the glenoid margin and the torn margins thrust aside by the dislocated humeral head The gap between these torn margins becomes filled in by new or cicatricial capsule, as the gap between the divided ends of a contracted Achilles tendon become bridged together by new or cicatricial tendon The capsule thus lengthened permits recurrent dislocations without fresh tearing of capsule and reparative inflammation afterward. The humeral head dislocating in abduction great pressure on the posterior surface of the head results when the arm falls to the side of the body This accounts for the groove in the head (shown by dotted line) which I have found in every case in which I have operated. It sometimes represents the loss of a fourth or a third of the head If when the arm falls to the side this pressure is not great enough to lock the head in dislocation, then a spontaneous reduction occurs In a recurring subluxation (snapping shoulder) only temporary locking in abduction takes place, and the head snaps back into the joint on certain movements of the arm In a high excision of the humeral head (position of saw cut indicated by line *b*) the head is sawed off just above the anatomic neck and a little outside the pressure groove, so that the only portion of the head that leaves the socket in a dislocation is removed and nothing is left to be dislocated: *b*, position of saw cut, *c*, greater tuberosity, *d*, taut posterior capsule; *e*, anterior glenoid margin; *f*, coracoid process, *g*, torn fragments of capsule.

After the necessary period of caution following operation, say three or four months, when cicatrization may be considered completed, I advise the most violent use of the arm that the patient is willing to make. Before the operation, there was a hernial pouch of capsule large enough to receive the dislocated humeral head so that no trauma or tearing of capsule occurred, and consequently, after reduction, no inflammatory reaction or formation of new cicatricial tissue. After operation, in a new dislocation, the head must tear its way out at its weakest place, so that after the reduction new cicatricial tissue must form just where it can best reinforce the capsule. If relaxation and shortening of this axillary portion of capsule is maintained five or six weeks by bandaging the arm in the Velpeau position, the most important part of the capsule will be shortened and thickened as effectively as, if not more effectively than, it could be by a second operation. In other words, the first dislocation following operation produced a pathologic condition similar to that resulting from the original dislocation. If that had been treated properly, the patient would probably never have developed a recurrent dislocation. Instead, he would have had a stiff and painful shoulder, which is the chief purpose of a capsulorrhaphy in these cases. The stiffer the shoulder when the bandages are removed, the better the prognosis. In any case, at this stage the patient can abduct the arm to a level with the shoulder, which is sufficient for most functioning of the limb. There is no occasion to worry about a permanent ankylosis. There is more occasion to be concerned about a rapid return of full motion. In any case, another dislocation properly treated will result in a stronger joint.

RESULTS

In only one of my cases was a second dislocation necessary to give a sufficiently strong joint to withstand the strains put on it by the patient's needs, and the strains put on the affected joint were more severe in this than in any other of my cases. Nearly three years after operation, in defending his title as college champion wrestler in the 158 pound class, he sustained a dislocation of the shoulder operated on. More than four years later, in a boxing contest, he dislocated it again. In the nearly eight and a half years since then, it has given him no further trouble, although he has kept up continually vigorous athletic work, boxing, swimming, and anything else he has an inclination to do.

What we need most now are reports on the late results in the patients operated on, and such reports are growing. Recently Valtancoli[1] reported the results in thirteen patients operated on, capsulorrhaphy being the only operation performed. The immediate results were good in all. The late results were learned in nine cases. Of these, in six the results were faultless, in one good, and in one (an epileptic patient) wholly negative after the first operation, but excellent after the second operation. In the remaining cases the result was good for seven years, but during military service the trouble recurred and has persisted. He summarized his results as follows: The operation was successful in 86 per cent. (with complete restoration of function), cure with reduced function in 7 per cent., and failure in 7 per cent.

I have operated on fifty-seven shoulders in fifty-three patients, eighteen shoulders in epileptic and thirty-nine in nonepileptic patients. Of the latter, three were of the "snapping shoulder" variety or recurrent subluxations. Since my last report,[2] no additional epileptic patients were operated on. Of these eighteen, a capsulorrhaphy was done first in seventeen. After three capsulorrhaphies with failure, a high excision of the humeral head was performed six years ago, and since then there have been no more dislocations in that shoulder. Shortly afterward, a recurrent dislocation developed in the other shoulder of this patient, the dislocation being repeated with every convulsion. The patient being very muscular, the convulsions were very violent and they were very frequent. Since he was of low mentality, permanently confined to an asylum and difficult to control, it was decided that a high excision was indicated without resorting to a preliminary capsulorrhaphy.

The results in the eighteen shoulders in epileptic patients are summarized as follows:

No recurrence after one capsulorrhaphy: Ten cases, or 55.5 per cent., the first patient being operated on fifteen and one half years ago, the last six years ago.

No recurrence after two capsulorrhaphies: Two cases, or 11 per cent; last operation in first case five years ago, and in second case, three years ago.

Capsulorrhaphy thus was 66.5 per cent. successful in epileptic cases and a failure in six shoulders, or 33.5 per cent.; but bone operations stopped the dislocations completely in five of these and were not tried in the other. These six may be tabulated as follows:

No recurrence after high excision of the humerus: Four shoulders, or 22 per cent. of the eighteen epileptics; this operation done in the first shoulder six years ago and in the fourth, three years ago.

No recurrence after reshaping glenoid cavity: One case, or 5.5 per cent.; operation, fifteen and one half years ago.

Recurrences after two capsulorrhaphies: One case, or 5.5 per cent.; last operation, thirteen and one half years ago.

It is my belief that a dislocation after a high excision of the humerus is impossible because the only portion of the humerus that can leave the socket in a dislocation is removed by this operation (Fig. 1 *B*), and that a dislocation will not occur after a reshaping of the glenoid cup. Hildebrand,[3] who seems to have originated this operation (reshaping the glenoid cavity), operated on two patients with normal motion developing later in both cases, and no recurrences at the time of reporting them. I know of no other reported cases. I described and illustrated each step of the high excision of the humerus[4] and the functional result[2] in a case in which this operation was done in both shoulders for recurrent dislocation, as well as the roentgen-ray findings long after the second operation. The functional result is between 70 and 80 per cent. of the normal in both shoulders, although the patient is mentally defective from his epilepsy, and little disposed to take the exercises necessary for the development of full function. In an epileptic patient who has the mentality to work for and appreciate full function, in whom the capsule operation has positively failed, I would give the preference to the Hildebrand operation, although it is not as easily done, because it appears to offer the best chance of normal function from suitable exercises.

Of the thirty-nine nonepileptic cases, a single capsulorrhaphy was done in all, with the exception of one early case in which two capsulorrhaphies were done. With the proper care, this operation is sufficient, in my opinion, to stop the dislocations entirely and to give a normal functional result. Three have not been heard from recently, and three others were of the "snapping shoulder" or recurrent subluxation variety. The remaining thirty-three cases may be thus summarized:

No dislocation since operation in twenty-two cases, or 66⅔ per cent.; first patient operated on seventeen and one-half years ago, and last six months ago.

One dislocation since operation in seven cases; in the first case, this dislocation occurred in the first year after operation, which was fifteen and one half years ago, and in the last case this dislocation occurred three years after the operation and only two months ago.

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[1] Valtancoli, G.: Chir. d. org. di movimento **9**: 131-140 (Dec.) 1924.

[2] Thomas, T. T.: Surg., Gynec. & Obst. **32**: 291 (April) 1921.

[3] Hildebrand: Arch. f. klin. Chir. **66**: 360, 1902.

[4] Thomas, T. T.: Ann Surg. **66**: 492 (Oct.) 1917.

Two dislocations since operation in one case; first dislocation, three years after operation, and second dislocation, seven years after operation, or eight years ago.

Acknowledged failures, two cases; refused or ignored direction after operation; probably hopeless without further operation.

One case still very hopeful without further operation, if he submits to direction which he has as yet ignored.

Every writer on this subject in the past, according to my knowledge, has regarded a dislocation following operation as establishing the failure of that operation. In my opinion, a proper understanding of the pathology of the original dislocation, of the recurrent dislocations and of the first dislocation following operation, shows us how to obtain, after this first postoperative dislocation, by the proper use of the pathologic changes, a positive and permanent cure without further operation; i. e., how to make the joint as strong as normal or stronger, if this is desirable. Of these thirty-three cases, we find that the operation itself was sufficient for a cure in twenty-two cases or 66⅔ per cent. In seven others, one dislocation after operation was necessary to supplement the operation, and in another, two dislocations. A successful result was thus obtained by the operation, directly or indirectly, in thirty of the thirty-three cases, or 91 per cent. The character of the work done by these eight patients since the last dislocation is convincing and makes these cases most interesting and important, because they solve the most important problem in the whole subject. They are briefly summarized as follows:

Case 1.—An athlete, now a physician, was operated on more than fifteen and a half years ago, and within the first year, owing to violent wrenchings, had the sensations of momentary dislocations or subluxations, but has never had any further trouble, although he has continued his athletic exercises, and was thrown from a horse.

Case 2.—A heavy weight student wrestler was operated on about a month after Patient 1, and afterward became the champion wrestler of his college; but in a wrestling bout three years after the operation he redislocated the same shoulder. He later went back to heavy gymnasium work and permitted himself to be photographed standing on his hands, because he was taking much greater risks in the gymnasium every day. Seven years after operation, he again dislocated this shoulder in a boxing match, but in the eight years since he has done "all kinds of athletic work" without any further trouble in the shoulder.

Case 3.—A strong man, operated on more than eleven and a half years ago, redislocated the same shoulder when a horse fell on him seven months after the operation, but has never had any further trouble, although he has done "all kinds of hard work."

Case 4.—A gymnasium instructor was operated on six years and nine months ago, and eight months later had a redislocation in a basketball game, but has had none since. He wrote recently that the shoulder operated on (left) felt just as strong as the right, and he used the two about equally, and that the motion was perfect. In publishing a report of this case in 1921 (compared to the preceding three cases, it was comparatively recent then), I said that I believed that this patient had as good prospects as the others had had in the corresponding stage. This is now confirmed.

Case 5.—A college student was operated on, June 12, 1915, and he redislocated the same shoulder, Oct. 21, 1922, more than seven years later, while he was attempting to mount a horse without a saddle. As he jumped up to straddle the horse, it moved; his arms were stretched out in his effort to hold on to the horse when the dislocation occurred. This happened on a ranch in South Dakota, and the patient lived in Iowa, so he waited until he reached home five days later to have the arm bandaged in the Velpeau position, but held the arm close to his side during that time. Since then he has played tennis and golf with no ill effects, and can throw a ball. In tennis, he plays and serves without reservation. He still lacks confidence in the shoulder and wishes to know how to gain it. The answer is to take another dislocation if it can happen, and immobilize the arm properly afterward.

Case 6.—An ex-service man and coal miner was operated on, June 2, 1920, and had a redislocation, April 24, 1921, but has had none since. March 23, 1925, he wrote that the affected arm could not be in better condition, that he has continued to work hard as a coal miner, and that he is a baseball player, throwing the ball with the hand of the affected side.

Case 7.—A dental student was operated on, June 13, 1922, and had a redislocation, March 14, 1925. While watching a basketball game he suddenly realized that the ball was coming toward him, and he put up the right hand to stop it. The right shoulder had been operated on. The ball drove the arm into extreme abduction and external rotation, the most dangerous position for the occurrence of dislocation, which resulted. It was reduced immediately and the arm bandaged in the Velpeau position, but his physician released the arm from the bandage in nine days. Twenty-six hours afterward while lying on his back, he allowed the arm to fall into abduction and external rotation, and another dislocation occurred. After reduction and bandaging in the Velpeau position, he came to Philadelphia, a distance of about 200 miles. The arm was kept in this position for eight weeks, when the shoulder motion was considerably limited, this being the desired result. The prognosis given in 1921 for Case 4 can be given for this case now with equal confidence.

Case 8.—A college student, aged 19, was operated on, June 17, 1921. Before operation, he would have as many as three dislocations in one basketball game. After operation, he continued to play basketball as before, and to do anything he wished to without fear. Nov. 10, 1924, he redislocated the same shoulder while wrestling, reduced the dislocation himself, but did not bandage the arm at the side at any time afterward. He has not engaged in athletics since then, but does his usual work without fear, lifting boxes and other weights above his head with the affected arm in full abduction and external rotation, the most dangerous position for the occurrence of a dislocation. In this position, he has some tightness in the axilla and a slight restriction of abduction, which adds to the ability of that joint to resist dislocation. I advised him to force the movements of the shoulder to the limit, and to welcome another dislocation if he can produce it. The chances are that he will not, but he has promised to permit me to direct his course afterward if another dislocation occurs.

The following two cases are failures and the third is likely to be:

Case 9.—A young man was operated on, Jan. 5, 1913. Jan. 17, 1914, he redislocated the same shoulder with slight violence and again, Oct. 14, 1914. On neither occasion did he return to me for direction. At this time, I had not discovered the curative advantages of a postoperative dislocation, so that when the patient's physician sought relief for him, I urged a second operation, which was equally unsuccessful. This is the only nonepileptic case in which I performed a second operation, and probably it will be the last.

Case 10.—A strong young man, operated on, May 25, 1918, was never seen by me after he left the hospital, about two months after the operation. Aug. 5, 1919, while repairing an automobile, in reaching for a difficult position, he wrenched and dislocated the same shoulder. He did not immobilize the arm afterward and soon had another dislocation, and after this more of them.

Case 11.—A college teacher was operated on, Feb. 1, 1921, and after leaving the hospital at the end of a week, was not afterward seen by me. He redislocated the same shoulder, Sept. 11, 1922, while going through some setting up exercises. Jan. 4, 1925, the same dislocation recurred from sneezing while the hand was outstretched on a banister. An effort was made recently to see him, but without success. It is likely that the condition will become as bad as before the operation.

POSTERIOR DISLOCATIONS

Of the fifty-seven shoulders operated on, there were three with posterior dislocations in two patients, both men and epileptic. In three other men both shoulders were involved, but the dislocations were all anterior. Two were epileptic and one not epileptic. As the brief statistics show, anterior dislocations of the shoulder are very much more common than posterior, and it is a little interesting to note that in one case a posterior dislocation occurred on both sides. On the theory of chances, one of them should have been anterior; but while I have not seen or read of another bilateral posterior recurrent dislocation, I am inclined to believe that the occurrence of the same dislocation on the two sides is not an accident. I have many times produced an anterior dislocation of the shoulder on the cadaver by hyperabduction, never a posterior. Occasionally a typical fracture of the greater tuberosity of the humerus would be associated with the anterior dislocation thus produced. So far as I can recall, when I found a fracture of the tuberosity associated with the dislocation I always made a similar dislocation in the opposite shoulder and always obtained a similar fracture of the greater tuberosity with it. I could not avoid the impression that there was something in the anatomy or construction of the skeleton in that person or cadaver to favor the occurrence of this fracture with the dislocation. There is no attempt here to explain but to state an interesting fact.

According to Valtancoli,[5] Krönlein found one posterior among 207 shoulder dislocations, Finckl, five among 206, and Valtancoli, five among 140. Schlaepfer,[6] among 120 shoulder dislocations, found 113 (94 per cent.) anterior and seven (6 per cent.) posterior. When the findings of all four are added, we find eighteen posterior among 673 shoulder dislocations, or 2.7 per cent. My three posterior dislocations represent about 5 per cent. of the total fifty-seven shoulder recurrent dislocations.

The capsule is always lax where the humeral head leaves the socket, in the axilla in the anterior dislocation and under the spine of the scapula and acromion in the posterior, and a capsulorrhaphy must be done at the site of the laxity in order to contract it. The posterior operation was done in all three shoulders, which were in epileptic patients, and in none has there been a dislocation since operation. The function is perfect in two and nearly perfect in the other. The operation will be described and illustrated in connection with all the operations employed.

SNAPPING SHOULDER

Snapping shoulder, though rarely mentioned in textbooks on surgery, is a real and disabling condition. While I have observed and operated on three patients, with fair success in the first, and marked success in the second and third, and while I have a conviction, I would hardly feel justified in expressing a positive opinion regarding its basic cause. Kappis[7] adds two cases by Parona and Riedinger to the eleven already reported, and sums up as follows:

> The joint as a whole, by voluntary activity, is brought into an abnormal position so that it jerks away from a tense muscle with a snap, generally backward. In disease or paralysis, such a process may take place habitually and involuntarily. Habitual luxations can also sometimes be brought about voluntarily, and more rarely restored to position voluntarily, causing a kind of snapping. A sort of shoulder snapping is accounted for by the fact that the normal joint movements are inhibited by some intra-articular cause, and the inhibition is overcome by a sudden snapping.

While this does not explain the condition, it does emphasize its intra-articular character. Bristow[8] operated on a woman, aged 31, in whom the condition resulted from two falls at the age of 16, and found that:

> From the outer side of the short head of the biceps, muscular fibers were taking origin, running downward and outward to the long head. On abducting and rotating the arm, this fleshy muscle rode over the lesser tuberosity. About 1 inch [2.5 cm.] of this—that part coming in contact with the lesser tuberosity—was removed with a strip of the tendon of the short head of the biceps to which it was attached.

Recovery was uneventful, and the patient could afterward play tennis, which she had not been able to do before. The cause assigned here is entirely extra-articular, and since I believe the cause intra-articular, I would offer the following criticism: The riding of the short head of the biceps over the lesser tuberosity is a normal movement and is abnormal here only to the degree that the movement of the whole humeral head is abnormal, because of an abnormal joint condition.

Kappis observed that the humeral head generally snapped backward. In Case 14, there was a difference of opinion on this point. In Case 15, it was noted that the snap was upward and forward, which was the final conclusion in Case 14; but in Case 16, it was concluded that the snap was backward. In all three cases, there was the conviction that we were dealing with an intra-articular condition in the nature of an abnormal range of or a subluxating movement of the humeral head. In Case 14, two surgeons were responsible for the site of the capsulorrhaphy, but in Cases 15 and 16, I alone was responsible. I decided in favor of anterior or axillary capsulorrhaphy, because about 95 per cent. of my other and complete dislocations were anterior, and these were probably of the same type. Because of the uncertainty during the operation in Case 15, a posterior capsulorrhaphy was added with the hope that whichever was present it would be controlled. The end-result was perfect. In Case 16, although the snap seemed to occur backward, the anterior operation alone was performed, and a perfect end-result was obtained. Therefore, in future cases, I expect to do the anterior operation until the results do not justify it.

RECOVERY OF MOTION AFTER CAPSULORRHAPHY

The recovery of motion after a capsulorrhaphy needs very little discussion. I am never concerned in a nonepileptic patient or in an epileptic patient of good mentality. Only epileptic patients of impaired mentality preserve restricted movement, because they will not tolerate any pain and they do not appreciate the necessity for the necessary exercises. Indeed, when the relatives or friends of such patients or the attendants who care for them in institutions are asked about the result of the operation, they are usually enthusiastic, and do not seem to know that some patients cannot elevate the arm normally. Their attention has not been called to it because the patients do not complain, and because the occasion for full abduction rarely arises in their presence. Epileptic patients of good mentality, and especially those who must earn their livings, recover motion about as well as nonepileptic patients.

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[5] Valtancoli, G.: Chir. d. org. di movimento **9**: 171-188 (Dec.) 1924.

[6] Schlaepfer, K.: Am. J. M. Sc. **167**: 244 (Feb.) 1924.

[7] Kappis: Arch. f. Orthop. **20**: 554 (July 31) 1922.

[8] Bristow, W. R.: J. Bone & Joint Surg. **6**: 53 (Jan.) 1924.

Examples of this are seen in the preceding case reports of posterior recurrent dislocations.

There is, however, real need for concern about too early return of motion after a capsulorrhaphy, so that I advise the patient to preserve some stiffness at least for five or six months, and am pleased if, at the end of a year, there is some tightness in the axilla on full abduction. There is some reason to believe that if, after a capsulorrhaphy in an epileptic patient the arm is held in the Velpeau position, preferably in a plaster cast, for three or four months, a recurrence would not follow and consequently a bone operation would not be necessary; but a high excision of the humeral head will positively stop all dislocations, and a Hildebrand reshaping of the glenoid cavity will probably do so. After the former, nearly full function can be recovered, and after the latter, probably full function. These operations will probably never be indicated except in epileptic patients, and in them only very rarely.

I have previously discussed the operations I have done for this condition except that for the posterior variety, and that will be described and illustrated here. In my first twelve shoulders, the axillary operation was done between the coracobrachialis muscle in front and the axillary vessels behind.[9] These were all anterior dislocations, and in all of this kind since, except a high excision in one shoulder of an epileptic patient and a deltopectoral capsulorrhaphy in one snapping shoulder, the capsulorrhaphy has been done just posterior to the axillary vessels[10] The Hildebrand operation for reshaping the glenoid cavity[2] was done by the posterior route as described below and consists in chiseling away the posterior margin of the glenoid cavity, while the humeral head is in the anterior dislocated position and the cavity empty, until the anterior margin is abnormally raised above the posterior margin and offers an apparently insuperable obstruction to an anterior dislocation. The result in my case is exceptionally brilliant.[11] There has been no recurrence in the fifteen and a half years since, although the convulsions have continued to be violent and frequent.

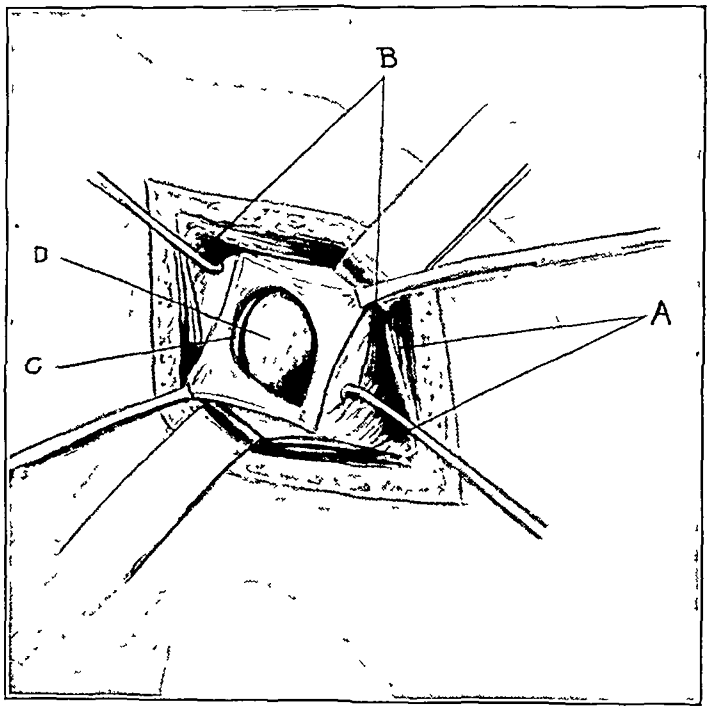

Fig 2—Exposure of shoulder joint posteriorly for overlapping of capsule for posterior dislocation or chiseling away the posterior margin of the glenoid cavity (Hildebrand) for a rebellious anterior dislocation, the head being dislocated forward out of the way during the operation: *A*, separated margins of the deltoid; *B*, separated margins of divided infraspinatus; *C*, posterior margin of glenoid cavity, *D*, posterior surface of humeral head and about the location of the groove usually found in the head in recurrent dislocations The divided capsule margins held by tissue forceps are easily overlapped by mattress sutures

TECHNIC OF POSTERIOR CAPSULORRHAPHY

The posterior capsulorrhaphy (Fig. 2) is done as follows: An incision about 6 inches (15 cm.) long is made from the spine of the scapula downward in the line of the fibers of the deltoid muscle, a little below the head of the humerus, or about midway between it and the lower or posterior margin of the deltoid. When made along the posterior margin of this muscle, too strenuous retraction forward of the deltoid flap is necessary for exposure of the capsule. The incision is deepened through the posterior fibers of the deltoid, and the underlying rotator muscles, infraspinatus and teres minor are exposed, and their fibers found running at about right rangles with those of the deltoid. The capsule lies under the infraspinatus and teres minor, and may be exposed between these two muscles, or perhaps more easily by splitting the fibers of the infraspinatus, making a muscle splitting incision not unlike the McBurney for appendicitis. One should not forget that the circumflex nerve is passing backward in the lower end of the wound to enter the deltoid about the center of its under surface, and from that point to radiate in all directions. After dividing the infraspinatus in the line of its fibers, and retracting the margins of this muscle as one retracts the margins of the internal oblique and transversalis in the McBurney incision, the capsule is exposed. It is divided about midway between its humeral and glenoid attachments, and parallel with both (Fig. 2), and the margins are overlapped with mattress catgut sutures, the arm being held in external rotation to relax this portion of the capsule. A continuous catgut suture for the infraspinatus wound, another for the deltoid, and silkworm-gut sutures for the skin close the wound without drainage. A gauze dressing and bandage are applied and the arm fixed at the side in full external rotation, preferably by a plaster cast. The Velpeau position gives perfect relaxation of the capsule for *the anterior* dislocation and axillary operation, but the opposite position is necessary to give as good relaxation for the posterior operation; i. e., full abduction and external rotation. But this is rather a difficult and uncomfortable position to maintain. As shown in the cases reported, I have tried this position, also full external rotation and half of full abduction (the arm on a level with the shoulder and the forearm upright), and in one case, the arm at the side of the body and in full external rotation (the forearm in line with the transverse axis of the body). The last was the most comfortable position, and as it gave as good end-results as the others, I expect to use it in the future.

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[9] Thomas, T. T: Am J M Sc, March, 1909; Recurrent Anterior Dislocation of the Shoulder, J A M A **54**: 834 (March 12) 1910

[10] Thomas, T. T: Surg, Gynec & Obst (Jan) 1914 (description); ibid **32**: 291 (April) 1921 (illustrations)

[11] Thomas, T. T.: Surg, Gynec. & Obst. **32**: 291 (April) 1921 (Case 6).

CONCLUSIONS

1. A recurrent dislocation of the shoulder joint is the equivalent of an ununited fracture, in that abnormal motion is permitted at the site of both breaks in the skeleton. The treatment in both is to remove the abnormal motion.

2. The best method of accomplishing this purpose in the anterior recurrent dislocation is by an axillary capsulorrhaphy, which is one of the simplest, safest and most effective major operations in surgery, and very rarely requires hospitalization for more than one week.

3. Return of motion after a capsulorrhaphy, from ordinary use of the arm, is sometimes too rapid to permit complete cicatrization before the joint is exposed to full violence. Therefore, operative stiffness is to be preserved rather than feared. Three fourths of full motion at the end of three or four months is satisfactory, and some tightness in the axilla on full abduction of the arm at the end of a year is a good sign. Normal motion after a capsulorrhaphy always develops in a nonepileptic patient or in an epileptic patient with mentality enough to desire it.

4. A dislocation following operation in a nonepileptic patient is an advantage in that particular case. It proves that the operative cicatrization was not sufficient for the needs of that patient and must be reinforced by the new cicatricial tissue following the new dislocation. In only one case was a second dislocation necessary to complete the cure. In thirty-three nonepileptic shoulders, a single capsulorrhaphy was successful in twenty-two without a further recurrence; in seven cases after one recurrence, and in one after two recurrences. This operation was a failure in three cases because the patients failed to take advantage of the curative effects of the first dislocation following operation.

5. A single capsulorrhaphy stopped the dislocations permanently in ten of the eighteen shoulders in epileptic patients. In two more, two capsulorrhaphies were necessary. In four, a high excision of the humeral head and in one a reshaping of the glenoid cup were necessary to prevent the dislocations. In the remaining case two capsulorrhaphies failed and no bone operation was performed.

6. A snapping shoulder is a recurrent subluxation of the shoulder joint, probably of the anterior variety, as with the recurrent complete dislocations. An axillary or anterior capsulorrhaphy will probably cure in every anterior subluxation, and may cause sufficient general contraction of the capsule to prevent the snapping of a posterior subluxation. If it does not cure in any case, an added posterior capsulorrhaphy will probably complete the cure. This is important, because it may be impossible to determine which variety one is dealing with. In my opinion this is a more disabling condition than a recurrent complete dislocation, because the displacement and snapping back occurs many times a day, while the complete variety almost always occurs at much longer intervals, usually of weeks or months.

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ABSTRACT OF DISCUSSION

DR DAMON B PFEIFFER, Philadelphia: The treatment of recurrent dislocation of the shoulder still requires further efforts at standardization There is as yet no general agreement on the rôle of the bone, the muscles and the capsule in the production of this disability. It may be said, however, that the bony changes in the head of the humerus and the glenoid cavity are generally secondary to the initial or subsequent traumatism and only occasionally a factor in predisposing to succeeding dislocation. It has been shown that the muscles of the shoulder girdle have a pronounced effect in producing redislocation, and numerous proposals have been made to alter the muscle balance in such a way as to obviate the dislocating force of the great adductors of the arm which in the hyperextended position exert a pull on the head toward the direction of dislocation. Utilization of these principles has had considerable success, notably in the Clairmont and the Sever operations. It is a fair criticism of all operations based on tenotomy or transplantation of muscle that they are mutilating to a certain degree and are at times followed by weakness or partial disability, which may, indeed, be of little moment compared with the dangers and disadvantages of recurrent dislocation, but are, nevertheless, not desirable. Dr. Thomas deserves great credit for his insistence on the laxity of the capsule as the common cause of recurrent dislocation, and for the development of a simple technic for exposure and removal of the redundant portion. The sagging and laxity of the antero-inferior portion of the capsule is the chief, if not the only, reason for the recurrence of dislocation. The operation of excision of the slack portion of the capsule, with or without plication, provided only that healing in the new position is allowed to become firm before new strain is placed on it, is simple and leaves no disability, as a legacy of the operative procedure itself. It is the operation of choice. It will cure the vast majority of cases. When there has been capsulo-articular separation or extensive drainage to the margin of the glenoid itself it may not suffice, but those cases must be relatively uncommon and are to be determined only by operation and best by trial of the simpler procedure.

THE HEALING OF ARTERIES AFTER DIFFERENT METHODS OF LIGATION

AN EXPERIMENTAL STUDY *

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RICHMOND, VA.

Ligation of arteries has received a great deal of study since the time of Ambroise Paré. The healing of arteries after ligation in continuity was admirably described in 1886 by Warren.[1] In 1922, Leriche[2] of Lyons gave a very complete report of the remote results of ligations and resections of arteries from the functional point of view. The work of both these authors has been largely substantiated and confirmed in this study, which, however, is primarily concerned with a search for the best method of ligating a large artery so as to produce a permanent occlusion of the arterial channel.

The problem suggested itself to me a few years ago on hearing a verbal report of a patient with an aneurysm of the innominate artery who bled to death at a second operation after the innominate artery had previously been ligated. An attempt to open the aneurysm led to a terrific hemorrhage, which could not be controlled. Necropsy showed that the ligature had cut through and the arterial channel had been reestablished.

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* From the surgical department of St Elizabeth's Hospital

* Read before the Section on Pathology and Physiology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N J, May, 1925.

[1] Warren, J. C.: The Healing of Arteries, New York, William Wood & Co, 1886

[2] Leriche, M. R.: Resultats éloignés des ligatures et des résections arterieles, Association française de Chirurgie XXXI Congrès français de chirurgie, Paris, 1922

A good many cases are reported in the literature in which, subsequent to ligation in continuity of one of the large arteries, the arterial lumen has been reestablished No cases have been found in which this has occurred after multiple ligations with division of the artery.

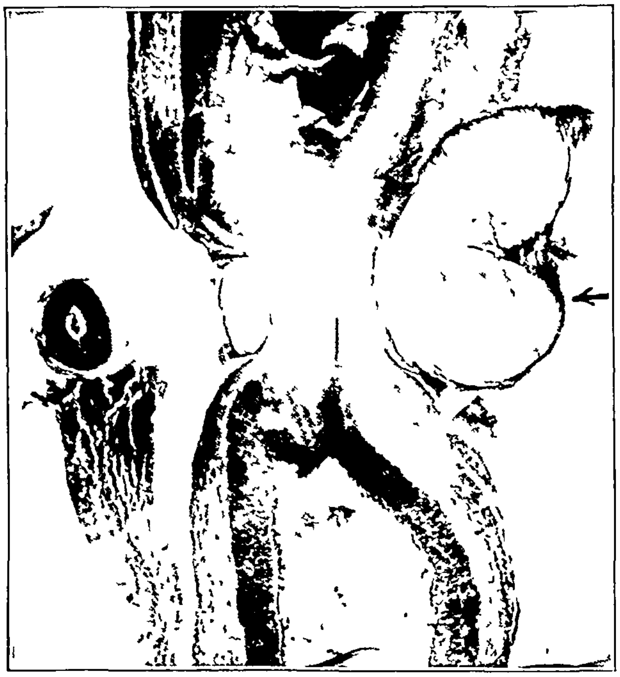

Fig 1—Longitudinal section of single ligature on femoral artery, 00 plain catgut, seven days after operation, magnification about 26 diameters

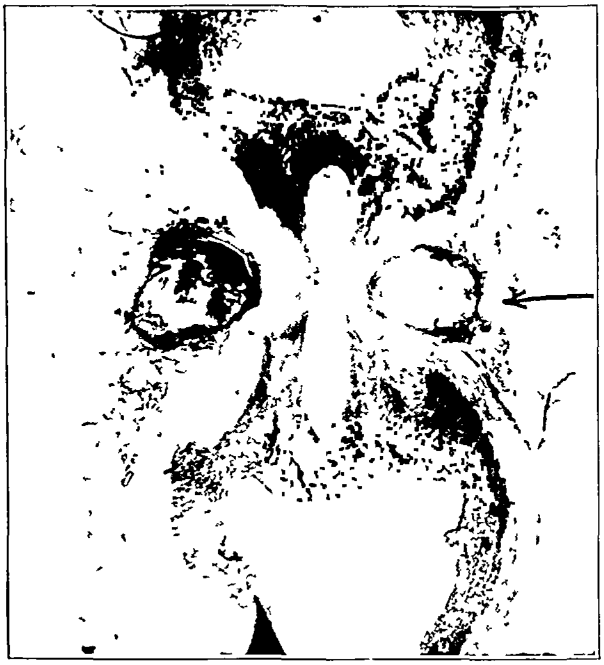

Fig 2—Longitudinal section of single ligature on femoral artery, medium linen, sixty two days after operation, magnification about 30 diameters

In 1907, J Shelton Horsley[3] ligated in continuity the right external iliac artery of a patient who had a fistulous opening between the external iliac artery and vein, which communicated externally and was the source of occasional terrific hemorrhages. This condition followed a wound from a rifle bullet Three weeks after the operation, the right common and external iliac arteries were ligated in continuity on account of recur-

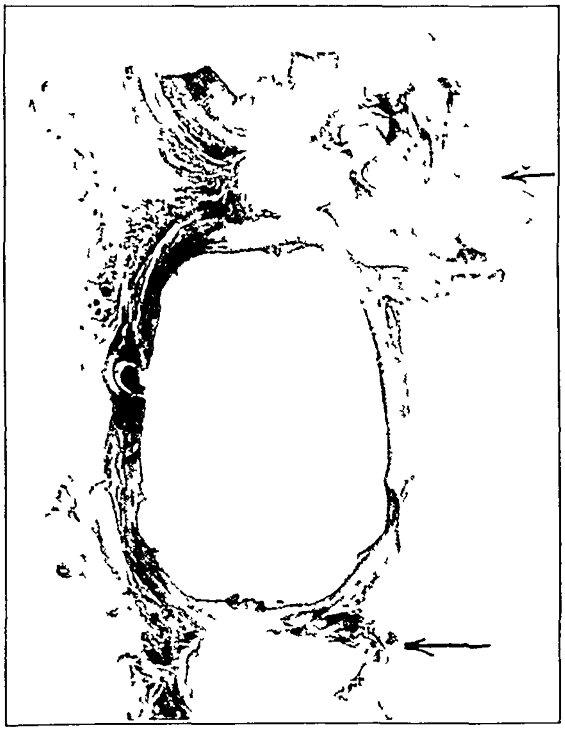

Fig 3—Longitudinal section of double ligatures on carotid artery, 00 plain catgut, fifteen days after operation, magnification about 17 diameters

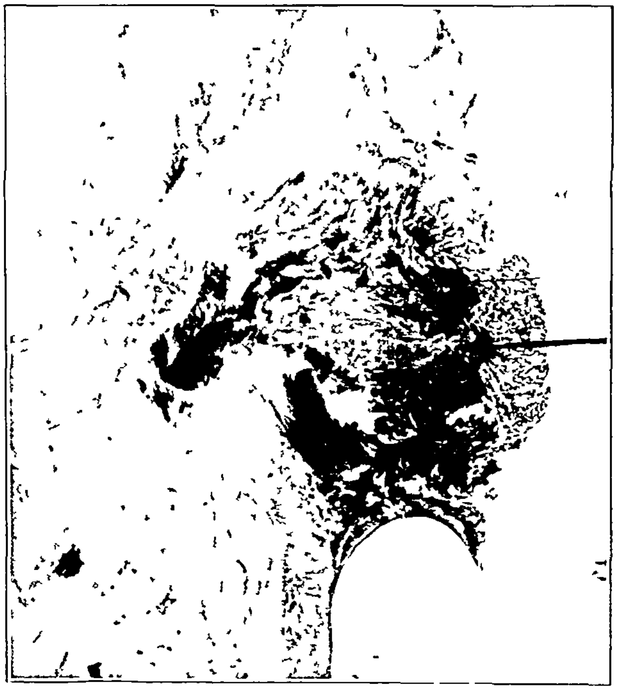

Fig 4—Longitudinal section of double ligatures on femoral artery, 00 plain catgut, forty days after operation Constriction of the walls of *the artery no longer exists, there is a tendency to canaliculization of the* occluding thrombus, magnification about 25 diameters

rent bleeding. Four weeks later there was another large hemorrhage, and the right common and external iliac arteries were again ligated in continuity, this time with silk instead of catgut. In four days the patient died of a sudden hemorrhage. Necropsy showed that the lumen of each vessel where the ligatures had been placed was partially reestablished.

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[3] Horsley, J S Personal communication to the author

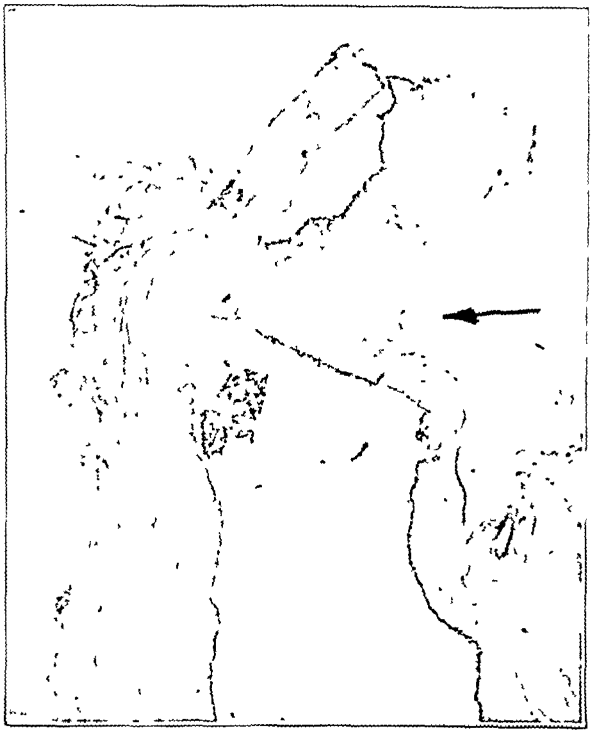

Fig 5 —Longitudinal section of single ligature on femoral artery, 00 plain catgut, thirty five days after operation A narrow band of tissue separates the lumens of the wide proximal portion and the contracted distal portion, magnification about 14 diameters

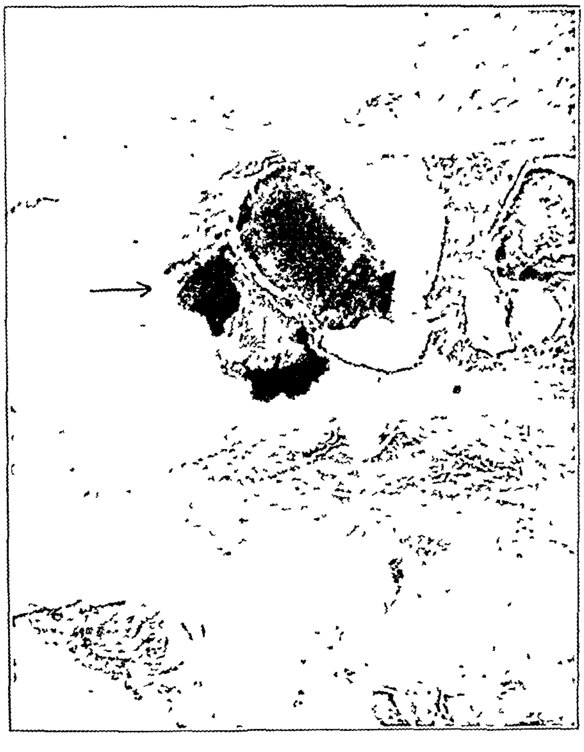

Fig 6 —Longitudinal section of double ligatures on femoral artery, 00 plain catgut, forty days after operation The arterial walls are no longer constricted by the ligature, and the lumen contains fresh blood clots with only a very narrow band of fibrous tissue occluding it, magnification about 25 diameters

In 1914, Thompson [4] of Galveston reported a case of ligation of the innominate artery, two ligatures of "bobbin" (the narrow linen tape used for tying the umbilical cord in obstetrics) being tightly tied side by side. Sixty-seven days after operation the patient died, and at necropsy the arterial lumen at the site of the ligatures easily admitted the end of a fair sized probe.

In 1918, Hamann [5] of Cleveland reported a case of ligation of the abdominal aorta in which apparently complete occlusion by a firmly tied silk ligature was obtained. In three days a reappearance of the femoral pulse was noted. Death occurred six months later from hemorrhage from a bedsore, and necropsy showed the aorta to be only partially occluded

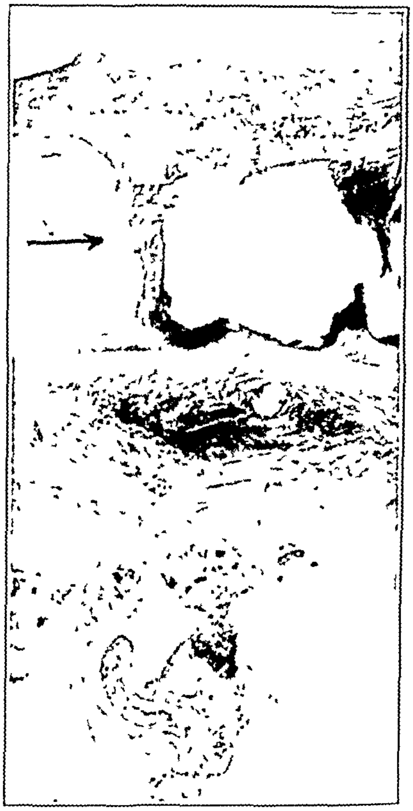

Fig 7 —Longitudinal section of same vessel as shown in Figure 6: This shows more distinctly the very narrow transverse band of tissue; the slight break in the fibrous band probably occurred during preparation of the section, magnification about 17 diameters.

Matas [6] reported a similar case in which double ligation of the abdominal aorta, with one-half inch woven cotton tapes, was performed for aneurysm at the bifurcation of the aorta. The patient died one year, five months and nine days after ligation. Necropsy showed that the original total occlusion had gradually been transformed into a narrow stricture. These five cases are cited to show the practical and clinical significance of this problem. Other such cases have been reported, and probably many more have been either unrecognized or not reported.

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[4] Thompson, J E: Ligature of the Innominate Artery for Cure of *Subclavian Aneurysms*, *Tr. South Surg & Gynec. A* **27**: 110 137, 1914.

[5] Hamann, C. A Ligation of the Abdominal Aorta; Ligation of First Portion of Left Subclavian, Ann Surg **68**: 2 (Aug.) 1918

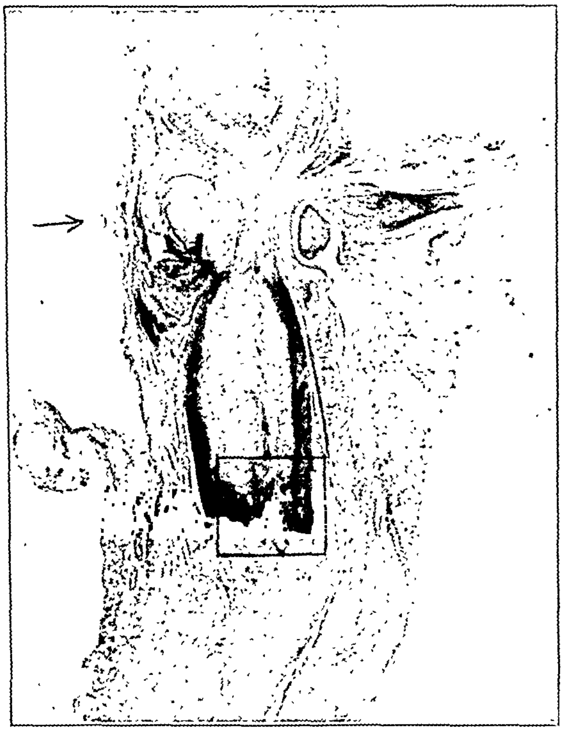
[6] Matas, R Ligation of the Abdominal Aorta, Surg, Gynec. & Obst **81**: 2 (Feb) 1925

EXPERIMENTS

Single and multiple ligations of arteries of dogs with and without section of the artery were made. The ligatures used were plain and tanned catgut, silk and linen. Some of the operations were done under ether and some under local anesthesia. All experiments were preceded by the administration of large doses of morphin, and every effort was made to prevent pain or suffering. The brachial, femoral and carotid arteries were used. In all, eighty ligated arteries were studied. Some of the incisions healed by primary union, but most had a mild superficial infection with slightly delayed healing. Secondary hemorrhage did not occur in any of the dogs.

LIGATURES

The end-results following ligation with plain and tanned catgut, silk and linen were about the same. The catgut absorbed more quickly and the silk and linen ligatures tended either to cut through into the arterial lumen or to loosen. About the nonabsorbable ligatures occasionally a small amount of thick purulent-like material collected, but more often the ligature was completely encapsulated in the surrounding fibrous tissue. Reid [7] of Cincinnati has shown that catgut should not be used for the ligation of large arteries, since it may give way before the necrosed vessel wall becomes completely healed by fibrous tissue. This observation was confirmed in these experiments.



[illegible] section of distal ligature of femoral artery after plain catgut and section, fifty-eight days after [illegible] about 17 diameters.

LIGATIONS IN CONTINUITY

When a ligature is firmly tied, the intima and a portion of the media is ruptured, and the adventitia is compressed into a sheath around the constricted ends (Fig. 1). The earliest noted change is the formation of thrombi. The sizes of the thrombi vary greatly. They are larger when the vessel wall has been crushed or injured, and when sepsis occurs; otherwise the thrombi are small.

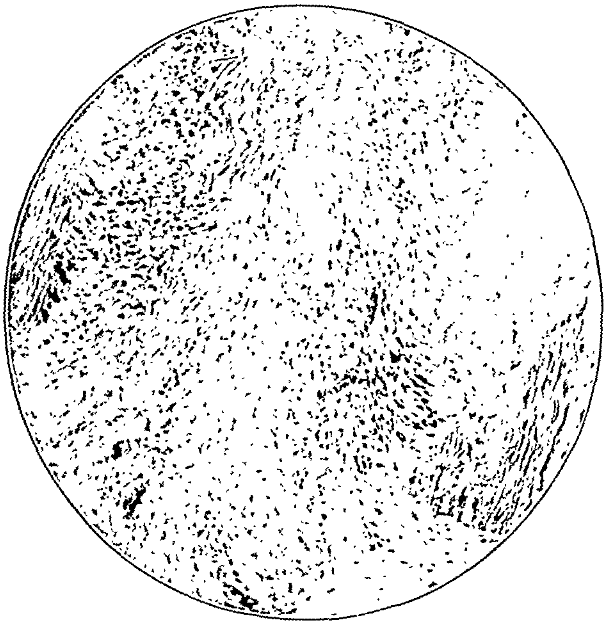


Fig. 9.—Higher magnification of [illegible] healed distal arterial end of same slide as Fig[illegible] plug. This field is outlined on the low power [illegible] reduced from a photomicrograph with a magnific[illegible]

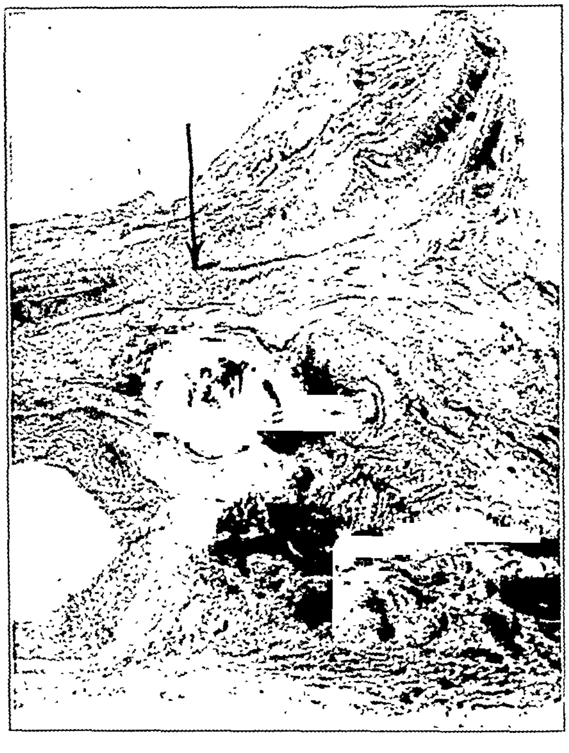


Fig. 10.—Longitudinal section of proximal ligature of femoral artery after double ligation with medium linen and section, sixty-one days after operation; magnification about 22 diameters.

During the first two to three days, an exudate and the swollen surrounding tissue bury the site of the ligature and form a callus for some distance above and below, depending on the amount of trauma and infection. This

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7. Reid, M. R.: Partial Occlusion of the Pulmonary Aorta and Inferior Vena Cava with the Metallic Band: Observations on Changes in the Vessel Wall and in the Heart, J. Exper. Med. **40**: 3 (Sept. 1) 1924.

callus tends to protect the vessel from secondary hemorrhage. Soon the ligatured area is invaded by leukocytes, and the ligature either loosens or cuts through the adventitia (Figs. 2 and 3). If it cuts through, the two ends of the vessel separate. Once freed the arterial ends begin to expand, and granulation tissue grows into the thrombi, producing an internal callus. With the granulation tissue new blood vessels are formed, which also penetrate the thrombi and may by canaliculization partially restore the occluded portion (Fig. 4). This stage usually occurs about a month after ligation. The vessel ends retract as the excessive repair tissue is absorbed, and a narrow permanent cicatrix is formed which usually closes the ends of the vessel. The cicatrix consists of three layers. The inner layer is composed of endothelium formed by growth from the intima; next to this is a layer of muscular tissue developed from the media, and externally there is a connective tissue layer.

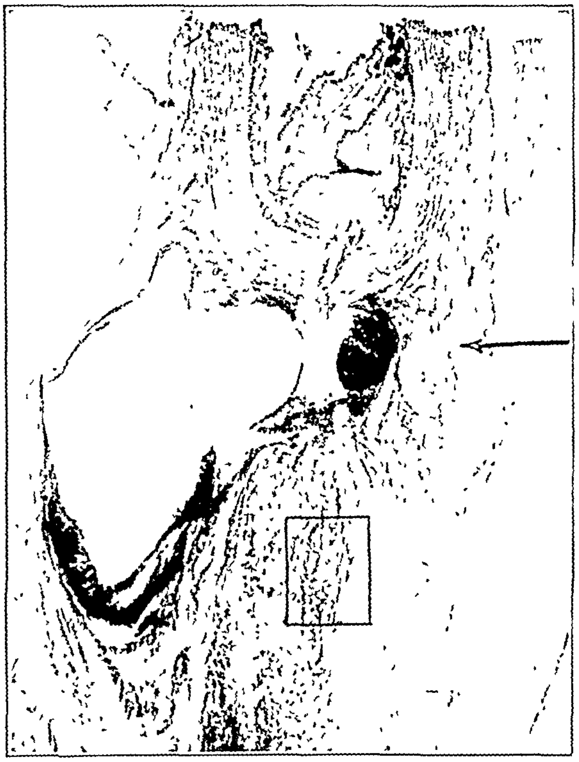

Fig 11.—Longitudinal section of proximal ligature of carotid artery after double ligation with medium linen and section, sixty four days after operation; magnification about 36 diameters

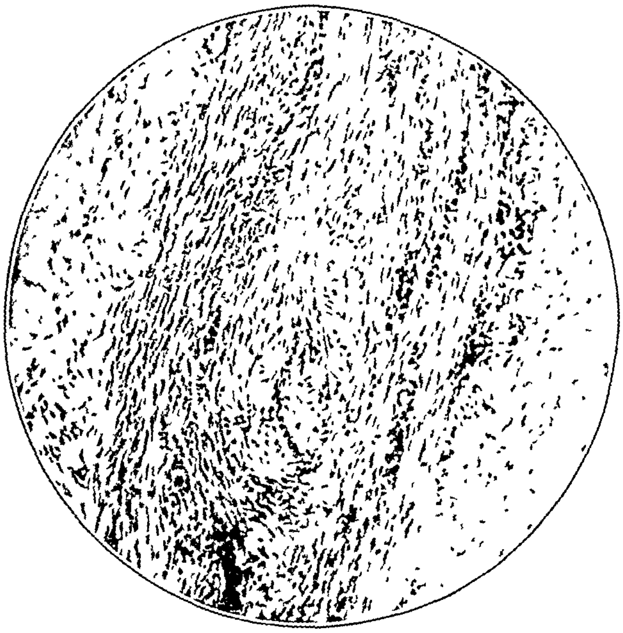

Fig 12.—Higher mag[illegible] n of healed proximal end of same slide [illegible] lug. This field is outlined on the low p[illegible] reduced from a photomicrograph with a [illegible]

Reestablishment of the arterial channel may occur during any part of this healing process by absorption, relaxation, or "cutting through" of the ligature into the arterial lumen, accompanied by either a dislodgment or canaliculization of the thrombus (Figs. 5, 6 and 7). The larger the artery and the higher the arterial pressure, the greater is the tendency to a reestablishment of the arterial lumen. After an insufficiently tightened ligature, not crushing the arterial coats, the reestablishment of the arterial lumen is rapid.

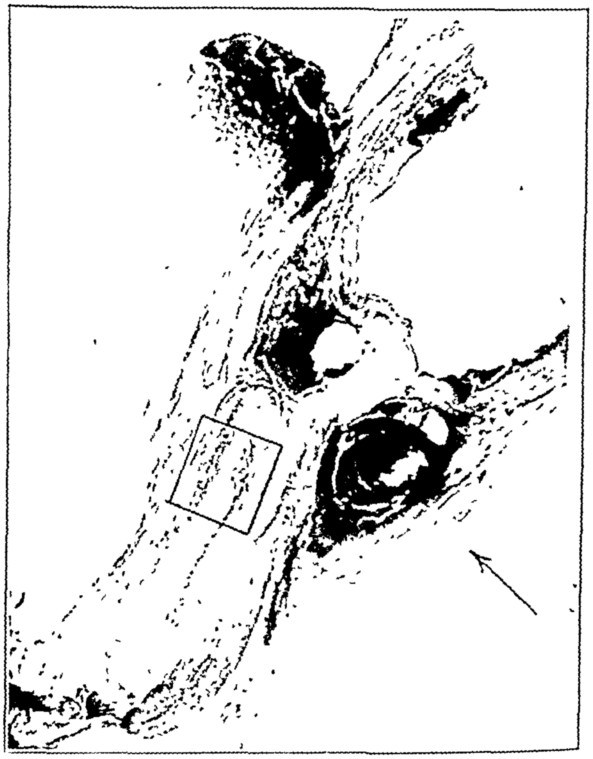

Fig 13.—Longitudinal section of distal ligature of same artery as shown in Figure 11, sixty-four days after operation; magnification about 17 diameters

The process of healing after double or multiple ligatures is essentially the same as after single ligation. In thirty-seven single ligations three arteries had their lumens partially restored, and in fifteen double ligations one artery had reopened.

DOUBLE OR MULTIPLE LIGATIONS WITH SECTION

If an artery is severed between ligatures, the stumps immediately retract and form small conical culdesacs. Within the arterial channel the process of healing is somewhat similar to the healing of arteries after ligation in continuity, though after section the intima of the conical stumps obtains an additional amount of nutrition from the surrounding raw tissue, and the exposed stumps are soon filled with granulation tissue, which forms a plug. Whether the ligature is absorbed, relaxes, or cuts through into the lumen, this cicatricial plug has already sealed the arterial lumen (Figs. 8, 9, 10, 11, 12, 13 and 15). The same process takes place in both the proximal and the distal arterial stumps. This plugging of the exposed ends of the divided artery and original retraction of the stumps, from one to several centimeters from each other, makes the chances of reestablishment of the arterial channel apparently impossible. Sections and careful study of the tissue between these retracted arterial stumps have shown merely connective tissue and no attempt at canaliculization or reestablishment of the lumen (Fig. 14). In twenty-eight multiple ligations with division of the artery there was no instance of even a partial reestablishment of the arterial channel.

SUMMARY

1. In five cases cited there was reestablishment of the arterial lumen following ligation in continuity of a large artery.
2. Eighty single and multiple ligations of brachial, femoral and carotid arteries of dogs with and without section of the artery were done and specimens collected at various intervals from a few hours to seven months after operation.
3. Four of fifty-two ligations in continuity and none of twenty-eight ligations with section were followed by a partial reestablishment of the arterial channel.
4. In multiple ligations with section of the artery the ends retract, and the intima of each stump is exposed to the surrounding raw tissue, securing an additional amount of nutrition and forming a firm, permanent cicatricial plug.

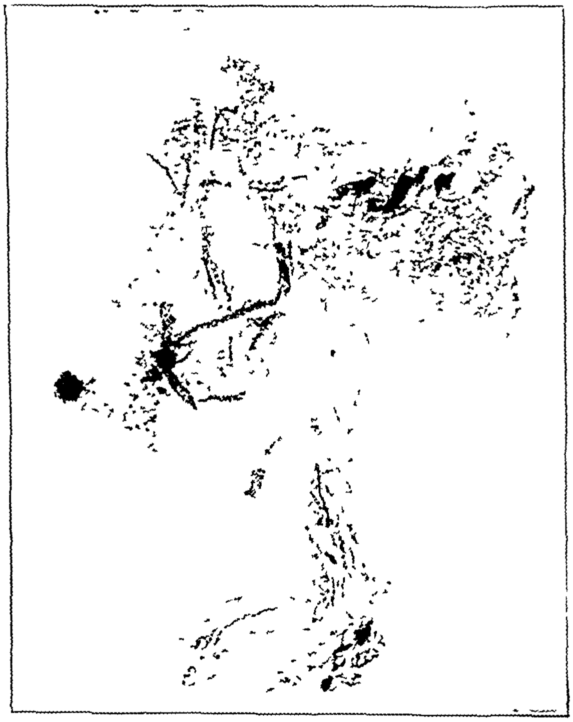

Fig 14—Cross section of tissue between ends of artery shown in Figures 11 and 13 This is connective tissue and does not contain any trace of vessels which could reestablish the original arterial stream; slightly reduced from a photomicrograph with a magnification of 45 diameters.

CONCLUSIONS

The results of these studies indicate that, in order to insure a permanent occlusion of a large arterial channel, the best method of ligation is to apply two or more ligatures and to sever the artery between the ligatures, allowing the ends of the artery to retract. In large vessels it is better to apply three ligatures and to divide the artery between the two distal ligatures. By this procedure the proximal ligature takes up the impulse of the heart beat and permits the tissue within the grasp of the distal ligature to heal at rest.

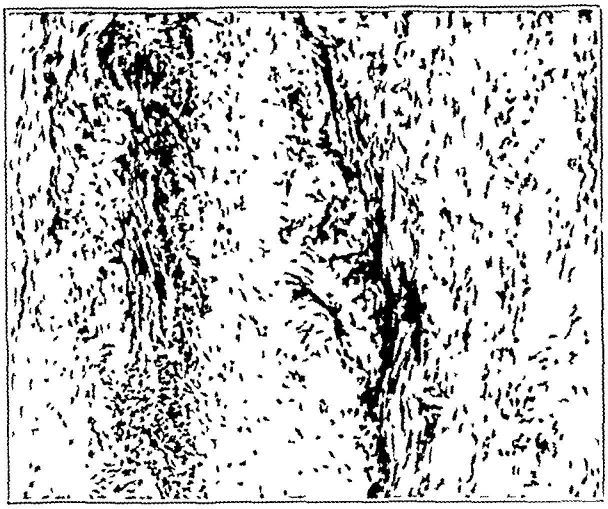

Fig 15—Higher magnification of longitudinal section of healed distal end of same slide as Figure 13 dense fibrous plug This field is outlined on the low power photomicrograph, slightly reduced from a photomicrograph with a magnification of 150 diameters.

617 West Grace Street

MELANOSARCOMA OF CHOROID WITH EXTENSION TO ORBIT

REPORT OF CASE *

EDWARD STIEREN, M.D.
PITTSBURGH

In malignancy of the eye and its adnexa, radium used alone or as an adjunct to surgical measures has proved to be of incalculable benefit. Recent writers report prompt and lasting cures from its use.

Aikins [1] speaks of a favorable outcome in two cases of sarcoma of the conjunctiva and one case of inoperable sarcoma of the orbit, as the result of radium treatment. Johnson [2] reports seven cases of carcinoma of the conjunctiva cured with radium emanations, and in his summary states that surgery usually fails to cure and actually assists the local and regional spread of the disease. Francis [3] reports a case of malignant lymphoma of the orbit in which radium was used after the growth had been removed by operation, with no recurrence in three years. Marcotty [4] reported a case of

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* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N J, May, 1925

[1] Aikins, W. H. B.: Sarcoma of Conjunctiva, Canadian M. A. J. **13**: 654 (Sept.) 1923

[2] Johnson, F. M.: Treatment of Carcinoma of the Conjunctiva with Radium, Am. J. Ophth **7**: 589 (Aug) 1924.

[3] Francis, L. M.: Malignant Lymphoma of Lacrimal Gland, Am. J Ophth. **6**: 182 (March) 1923

[4] Marcotty, A. H.: Lymphadenoma of Orbit and Lacrimal Glands, Klin Monatsbl. f. Augenh., 1922, p. 166.

bilateral lymphadenoma in which radium treatment was followed by prompt improvement. In glioma of the retina, Jacoby[5] reports three cases in which the use of radium is apparently proving of value, and Metzger,[6] who uses the term neuroblastoma, attributes to radium a cure. He makes the sage observation that there is no way of ascertaining macroscopically that the malignant process does not extend beyond the cut end of the optic nerve, and advises the prompt use of radium after every enucleation in this condition.

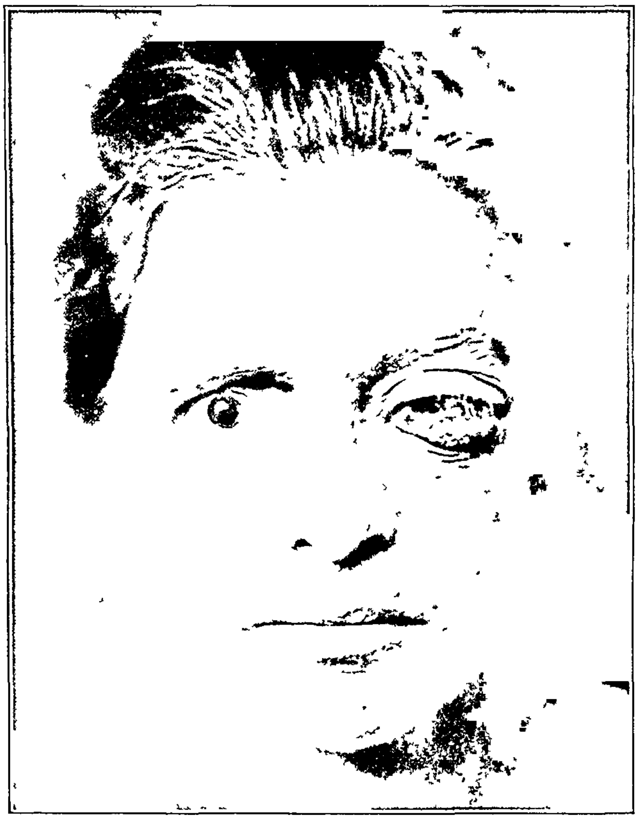

Fig 1 —Enlargement of eyeball and exophthalmos.

D. Y. and J. P. Keith[7] report a case of epithelioma of the cornea, in which the entire cornea was the color of limestone. Under the application of radium for five months, normal vision was obtained, and there was no recurrence nine months later. Wilder's[8] case of melanosarcoma at the limbus showed progress toward a cure under the use of radium.

REPORT OF CASE

Mrs. D. D., aged 40, an Italian, referred by Dr. J. A. Boale, Jan. 26, 1921, had recently had acute pains in the left eye on several occasions, and the eye had been blind for the past three or four months.

The right eye was normal; vision, 6/5; pupil, normal in size and reaction; media, clear and fundus negative; tension, 28 mg. McLean.

The left globe was moderately injected; pupil, dilated; tension, 60 mg. McLean The anterior chamber was shallow and the lens clear. There was a grayish-brown, funnel shaped detachment of the entire retina. The eye did not transilluminate below in an area extending from the external to the internal rectus muscles, but transmitted light through the upper half of the sclera.

A diagnosis of intra-ocular growth was made, and the patient was urged to have the eyeball enucleated at once. This advice was ignored, and the patient was lost sight of until Oct. 3, 1922, twenty months later, when she appeared with the eye proptosed and enlarged, a portion of the sclera below protruding between the lids, and the globe practically fixed in the orbit. A fundus reflex could be obtained in the outer upper quadrant, the remainder of the vitreous chamber being filled with a brown mass. The lower two thirds of the eyeball, including the protruding scleral portion, did not transmit light.

A generous enucleation, including all the apparently involved orbital tissues, was performed the next day, and the tissues were loosely approximated with catgut sutures. A laboratory report of melanosarcoma having been received, two days later, radium needles, 75 mg., were implanted deeply into the orbit, held in place with moist cotton sponges, left in situ five hours As a result, the tissues in the bottom of the orbit became charred, and eventually sloughed out. Healthy granulations followed, and the orbit healed entirely in four months, when a glass eye was inserted, which has been worn with comfort and good cosmetic effect ever since.

There has been no local recurrence or distant metastasis up to the present time.

COMMENT

The use of radium in malignancy, as well as in various benign affections of the eye and its appendages, is far past the experimental stage. Various authorities, notably Ewing,[9] Withers[10] and Lane,[11] have greatly advanced our knowledge of the principles and practice of radium therapy.

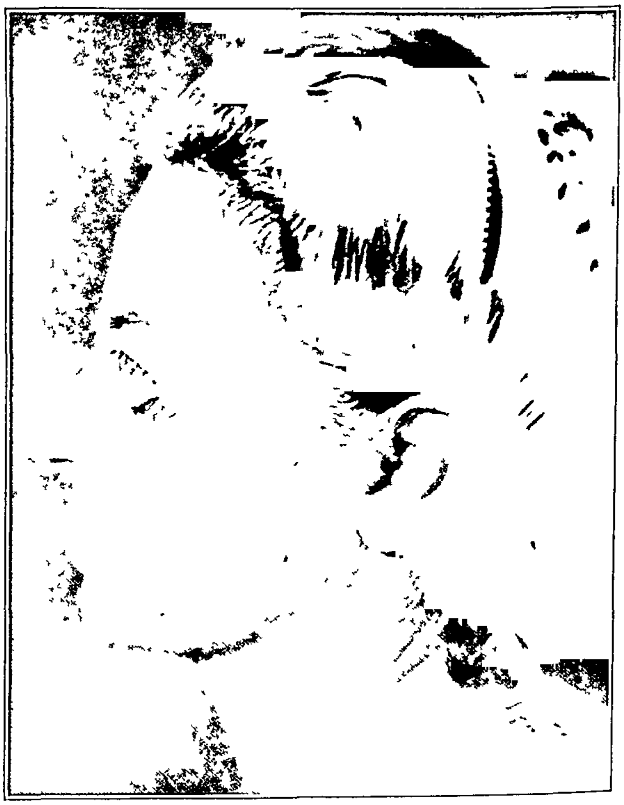

Fig 2 —Protrusion of sclera.

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[5] Jacoby: Radium in Treatment of Glioma, Klin. Monatsbl. f. Augenh., 1922, p. 180

[6] Metzger, E. L.: Neuroblastoma of Retina, Klin. Monatsbl. f. Augenh **69**: 547, 1922

[7] Keith, D Y., and Keith, J P.: Epithelioma of the Cornea, Am. J. Roentgenol **9**: 337 (June) 1922

[8] Wilder, W. H: Melanosarcoma of Limbus, Am J. Ophth, 1923, p. 693.

[9] Ewing, James: Tumors of Nerve Tissue in Relation to Treatment by Radiation, Am. J. Roentgenol **8**: 497 (Sept) 1921.

[10] Withers, Sanford: Value of Radiation Therapy in Ophthalmology, Am. J. Ophth. **7**: 514 (July) 1924.

[11] Lane, Laura A.: Radium in Ophthalmology, J. A M A. **83**: 1838 (Dec. 6) 1924.

ABSTRACT OF DISCUSSION

DR. ARTHUR J. BEDELL, Albany, N. Y.: In a series of forty sarcomas of the choroid, only one showed a definite extension into the orbit. This was in a man, aged 45, who five years before the first examination was said to have had a detachment of his retina resulting from an injury. The left eye was blind and the pupil was irregularly oval, 7.5 mm. The nasal side of the vascular iris was adherent to a cataractous lens, Schiötz 35. The Wassermann reaction was four plus. He had had two courses of arsphenamin. Under physostigmin, tension became normal and the patient was comfortable. Two months later the eyeball became injected, with slight exophthalmos and some limitation of motion in all directions. The eye was enucleated. A large mass was found extending from the globe to the optic foramen. In gross appearance it suggested melanotic sarcoma, and microscopically was found to be of the pigmented spindle cell type. Four months after the operation a nodule was found in the orbit. After a complete exenteration, he was given 1,500 mg. hours of radium. He died twelve days later, after having had a severe pain in his chest. It was impossible to exclude gumma; hence the delay in operation. Dr. Feingold has just given me the history of a 5 year old boy from whom one eye was removed for an intraocular tumor which showed several protuberances like the heads of rivets on the outside of the sclera. The tumor was a leukosarcoma. Dr. R. F. French of Marshalltown, Iowa, has kindly sent me the history of a man, aged 68, whom he observed for ten years. When first seen there was a definite loss in the lower field of the right eye. Three and one-half years later, the tension with the Gradle instrument was 61 and the lens was opaque. He was advised to have the eye trephined, but did not accept the operation for two months. Fifteen months later there was a recurrence of pain, which was controlled by phyosostigmin. About eight years after the first examination, a new growth extended through the sclera and encircled the external rectus muscle. The eye was enucleated and the growth found to be an highly melanotic spindle cell sarcoma involving the entire choroid and extending through the sclera posteriorly. I believe it unwise to depend on radium, and feel that the safest procedure is to give radium before and after operation.

DR. E. C. ELLETT, Memphis, Tenn.: A woman, aged 48, was seen in 1921, having been blind in the left eye for three years. The pupil was dilated and fixed, the lens opaque, tension plus 2, and the eyeball protruded, the exophthalmos amounting to 10 mm. The conjunctival vessels were very large and tortuous, and there were new vessels in the iris. Downward and outward there was a large dark subconjunctival mass (scleral staphyloma) extending from 2 to 6 o'clock. The orbit seemed to be free of any growth, and ocular rotations were limited. Transillumination showed a clear eyeball except where the light was over the dark mass. The eye was removed and the dark mass was found to be part of a growth which had burst through the sclera. All parts of the growth were removed and radium was applied. There has been no recurrence. The tumor was reported to be a fibroblastoma, moderately pigmented (melanosarcoma).

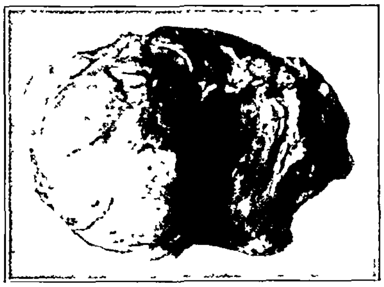
Fig. 3.—Protrusion of sclera and tumor mass.

DR. E. E. BLAAUW, Buffalo: The question of perforation of the bulb and extension into the orbit is not such a rare condition. Enough cases have been reported in the literature. One phase in this process has not been touched on frequently. Well known is the propagation inward of a new growth at the limbus and adjacent region; but when an extensive involvement of the orbit with a rather unimportant development inside the bulb is found, the possibility of a primary extrabulbar origin should be taken into consideration. Ballaban and Mulock Houwer have reported such a condition, and the latter has particularly drawn attention to this development, mentioning that chromatophores are found at the exit of the posterior ciliary nerves and vessels or in nevus of the posterior scleral surface (Axenfeld).

DR. W. H. WILDER, Chicago: If it is proper in this connection, I should like to raise the point that we are too frequently inaccurate in our records of the treatment of these cases by either radium or the roentgen ray. We frequently see reports of cases of treatment of malignant growths with radium in which we are not told how the radium was used, nor whether it was by emanations or radium metal. In communications on this subject the treatment should be more accurately described. If radium emanations were used it should be so stated and the length of time in millicurie hours; but whether metal or emanations are used, the amount, the time, the distance from the growth, and the kind of screen used should all be stated to enable us to arrive at some definite conclusions as to the therapeutic effect of these agents.

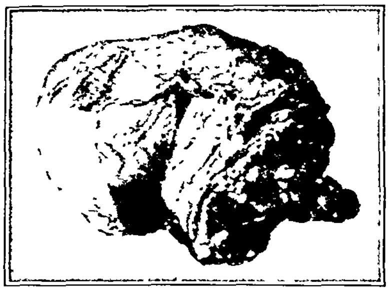
Fig. 4.—Tumor mass extension into the orbit.

DR. EDWARD STIEREN, Pittsburgh: When radium was used in this case, almost three years ago, we knew nothing about millicurie hours or radium hours. We were much in the dark as to what form to use, the time and how much to use. In this case, 75 mg. in needles was implanted for two hours. Now, thanks to the radium workers, we can determine much more accurately just how much to give in these various cases.

DEEP ROENTGEN-RAY EXPOSURE

AS AN AID IN THE DIFFERENTIAL DIAGNOSIS OF MEDIASTINAL TUMORS *

WILLIAM A. EVANS, M.D.
AND
TRAIAN LEUCUTIA, M.D.
Roentgenologist and Resident Roentgenologist, Respectively, Harper Hospital
DETROIT

The accurate diagnosis of mediastinal tumors is closely connected with the discovery and development of the science of roentgenology. A review of the literature previous to the diagnostic application of the roentgen ray reveals that the clinical diagnosis of mediastinal tumors, and especially their differentiation from lung tumors, was a rare occurrence. Indeed, all the reports, starting with Morgagni's[1] first description of an ulcus cancrosum of the lung in 1708, and continuing as far as Hare's[2] treatise on affections of the mediastinum, in 1889, were based on gross pathologic findings, and only since 1871 (Langhans[3]) have they been based also on the microscopic findings; but in all instances the clinical diagnosis of the disease remained vague and uncertain. The similarity of the symptom complex of mediastinal tumors and of lung lesions made the problem especially difficult. Since Hare's work, however, the interest in the subject has grown to such an extent and the literature has become so extensive that Christian,[4] in 1902, was able to collect reports of a hundred cases of sarcoma of the mediastinum and in 1912 Adler [5] could tabulate 374 cases of carcinoma and ninety cases of sarcoma of the lung. Nevertheless, the methods available for the clinical diagnosis were even at that time inadequate, and, as Wessler and Jaches [6] remark, "The diagnosis of mediastinal tumor was considered a brilliant accomplishment and a clinical *tour de force*." A new method of examination was more than hoped for. Adler himself writes with regard to this, "X-rays have become a most remarkable and efficient aid to diagnosis in general . . . and there exists a well founded hope . . . that with the systematic and proper application of rays to the exploration of the chest the diagnosis may be assured, when no other means will give equally certain results."

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Morgagni, J. B.: De Sedibus et Causis Morborum per Anatomen Indignatis, 1708.

[2] Hare: Affections of the Mediastinum, Philadelphia, 1889.

[3] Langhans, T.: Primärer Krebs der Trachen and Bronchien, Virchows Arch. f. path. Anat., 1871, p. 53.

Since that time many well known roentgenologists, such as Baker,[7] McMahon and Carman,[8] Barjou,[9] Christie,[10] DeWitt,[11] Kahn,[12] Childs,[13] Hall,[14] Rowe,[15] Gaarde,[16] Kahn and Sloan,[17] LeWald [18] and others have brought the method of the roentgenologic examination of the chest to such perfection that the diagnosis of mediastinal tumor now can be made with certainty in the majority of cases. Furthermore, by combining the radiologic examination with a thorough clinical examination,[19] laboratory tests, bronchoscopy and—if necessary—esophagoscopy, certain conclusions can be drawn also with regard to the type and nature of the tumor. Thus, inflammatory conditions, such as acute mediastinitis, mediastinal abscess, tuberculosis, and syphilis of the mediastinum or aneurysm of the aorta and great vessels in the majority of the cases can easily be differentiated from the true neoplastic tumors. But there still remains the problem of differentiating the true neoplasms among themselves, especially since they form the majority of the pathologic processes occurring within the mediastinum. If there is extension of the new growth to the regional lymph glands or some remote part of the body, biopsy can be performed and the diagnosis thus established. However, if the lesion is localized to the mediastinum itself, often all available methods will fail to reveal the true type of the tumor. In consequence, no accurate plan of treatment can be determined, especially with regard to whether radiation therapy should be used or whether the very dangerous procedure of thoracic surgery should be undertaken.

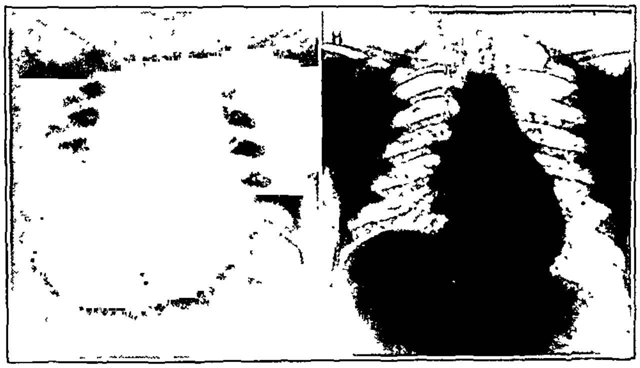
A B

Fig. 1.—*A*, large lymphosarcoma of the mediastinum, producing marked pressure symptoms; *B*, ten days following roentgen-ray exposure, the lesion has entirely disappeared.

In studying the radiosensitivity of the different normal and pathologic cells toward radiation, we have tried to find whether or not the selective action of the roentgen rays on the different cells could be used as an index of the type of tumor irradiated; this would enable us to form conclusions with regard to the nature of the different mediastinal tumors. Fortunately enough, the mediastinum contains tissues that give rise to tumors occupying positions far apart in the large scale of radiosensitivity of the cells. In administering a standard quantity of radiation over these tumors, because of the different response, there will be a variation in the reduction of the size of the tumor in the time unit. This we are able to measure.

TECHNIC

The following is our technic: After the presence of mediastinal tumor by the methods enumerated above is established and the possibility of an inflammatory condition is excluded as far as possible, we first take a roentgenogram of the chest in a standard position, using a standard technic (the usual short time exposure at 40 inches distance). Then we administer a homogeneous dose of from 90 to 100 per cent. skin unit dose over the tumor mass by using rays of short wave length (in our case 0.137 Angström unit, obtained by a current of 200,000 volts and by a filtration of 1 mm. of copper and 1 mm. of aluminum). We have chosen from 90 to 100 per cent. skin unit dose because this is the optimum dose for the majority of tumors, and therefore it acts at the same time as a treatment dose. Following the exposure, we take, by using the standard factors, check-up plates at different intervals; namely, ten days, three weeks, six weeks, and thereafter at intervals of three months, and we compare the size of the tumor on each of these plates with the size of the tumor on the original plate. The rate and amount of reduction in the size of the mass will be different according to the type of the tumor. Of course, we realize that while the decrease in the size of the growth is the direct result of the effect of the rays on the tumor cells themselves, there are other factors, such as local tissue reaction, or increase or decrease in the general resistance mechanism of the organism, that may accelerate or retard the reduction of the mass. However, as stated above, the mediastinal tumors originate from cells of such widely different radiosensitiveness that, in attempting to differentiate them, the changes produced by the secondary reaction may be neglected. For the same reason, we do not attempt to calculate the reduction in the size of the tumor in mathematical figures, but merely content ourselves with expressing it in the arbitrary form of biologic response.

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[4] Christian: J. M. Res. **7:** 54, 1902.

[5] Adler, I.: Primary Malignant Growths of the Lungs and Bronchi, London, Longmans, Green & Co., 1912.

[6] Wessler, H., and Jaches, L.: Clinical Roentgenology of Disease of the Chest, Troy, N. Y., the Southworth Company, 1923.

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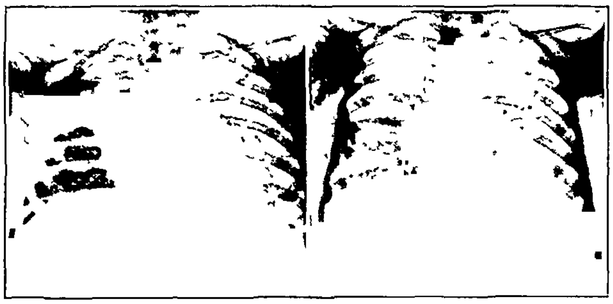

Fig. 2.—*A*, mediastinal involvement in lymphatic leukemia; *B*, ten days following roentgen-exposure, the lesion has entirely disappeared.

TYPES OF TUMORS

In studying mediastinal tumors from a pathologic standpoint, we find that they are primary or secondary. The diagnosis of secondary mediastinal tumors as a rule causes no difficulty, because they are of the same nature as the mother tumors. The primary tumors of the mediastinum may originate in the lymph nodes, connective tissue, thymus or the thyroid gland. They may be benign (fibroma, adenoma, lipoma, chondroma, myoma, neuroma, etc.) or malignant. The malignant tumors may be:

1 Lymphomas (lymphosarcoma, pseudoleukemia, lymphatic leukemia, Hodgkin's disease).
2 Sarcomas, originating from the areolar connective tissue (fibrosarcoma, spindle cell sarcoma, alveolar cell sarcoma, etc.).
3 Carcinomas, mostly of thymic or thyroid origin.
4. Dermoid cysts and teratomas.

According to their occurrence, the most common primary mediastinal tumors are those originating in the lymph glands (malignant lymphomas). Second to these in frequency are the sarcomas of the areolar connective tissue and carcinomas, especially those of thymic origin, since many consider the sarcomas of the thymus of epithelial origin and place them among carcinomas. Dermoid cysts and solid teratomas are rare. Smith and Stone[20] could collect reports of only 125 cases in the whole literature. Benign tumors of the mediastinum are exceedingly rare.

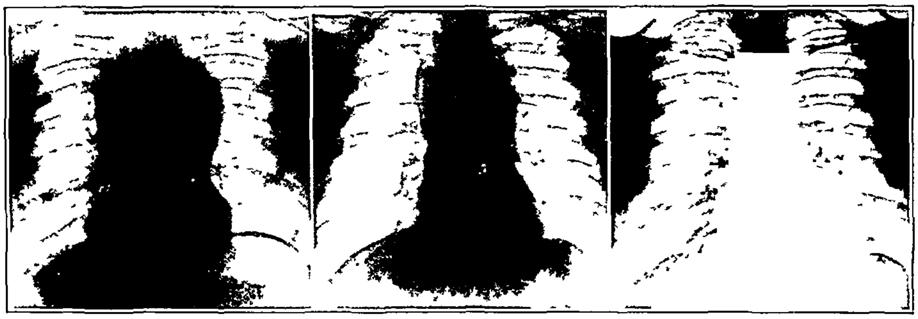

Fig 3.—*A*, Hodgkin's disease, with the mediastinal manifestation only; *B*, ten days following roentgen-ray exposure, the tumor has reduced to about one half of the original size; *C*, six weeks following roentgen-ray exposure, the tumor has entirely disappeared.

In explaining the response of these different tumors toward radiation, we find that the general laws of cellular radiosensitivity hold good:

1. The more embryonal and undifferentiated the type of the cells, the greater the response to radiation (Tribondeau-Bergonié law).
2. Dividing mytotic cells are from eight to fifteen times more vulnerable than when at rest (Mottram).
3. Hyperchromatic cells are more sensitive than cells poor in chromatin.
4. Tumors rich in paraplastic structures are more resistant to radiation than cellular tumors.
5. Tumors well supplied with blood and lymph vessels respond more readily to radiation than tumors consisting of solid cell masses.

In accordance with these laws, mediastinal tumors originating from the lymph nodes will respond best to radiation, and tumors originating from the proliferation of the lymphocytic element will respond more readily than tumors originating from the proliferation of the reticulo-endothelial cell element. Benign tumors, on the other hand, because of their mature adult type, will show little or no response to radiation. Sarcomas, carcinomas and teratomas will occupy an intermediate position. There will be a more or less pronounced initial response, but later, unless further exposures are given, recurrence of the disease will follow.

RULES FOR TREATMENT

In practice, we believe we can establish the following rules:

1. Tumors originating from the proliferation of the lymphocytic cell element of the mediastinal lymph glands or of the thymus, such as lymphosarcomas, thymomas (usually lymphosarcomas), pseudoleukemia, lymphatic leukemia and simple lymphomas, entirely disappear within from four to ten days following the administration of from 90 to 100 per cent. skin unit dose of roentgen rays over the tumor mass. If there is no further extension of the disease at the time of the treatment, patients will remain well; but if the lesion has already microscopically invaded other parts or organs of the body, later new manifestations of the disease occur and the patients may die as a result of these manifestations. In no instance have we seen a local recurrence in the group of tumors mentioned, if the lesion once had disappeared.

Figure 1 *A* shows a very extensive lymphosarcoma of the mediastinum, producing marked pressure symptoms, with resulting edema of the face and very marked dyspnea. The condition of the patient was so grave that oxygen inhalation had to be administered during the time of the roentgen-ray exposure. Figure 1 *B* shows the condition ten days following the exposure, when the lesion had entirely disappeared. Later there was extension of the disease to other parts of the body, so that the diagnosis could be confirmed by biopsy; but the

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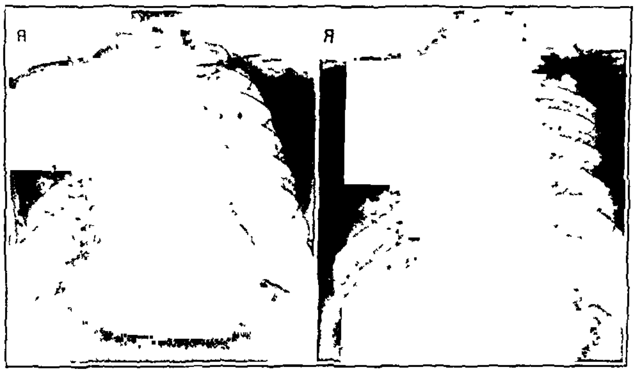
20. Smith, L W., and Stone, J. S.: Tumors of Mediastinum in Children, Ann. Surg. 79: 687-709 (May) 1924.

mediastinum remained clear. Figure 2 shows a case of mediastinal involvement in lymphatic leukemia. The mediastinum cleared up within ten days following the roentgen-ray exposures.

The further differentiation of these various lymphatic tumors is based on clinical and laboratory examination. Simple lymphoma is slow growing and of benign character. A thymoma—especially in the early stage—is located in the upper mediastinum and forms a pyramid capping the pericardium. A blood count will clear up the origin of the mediastinal involvement in case of lymphatic leukemia. The mediastinal manifestation of pseudoleukemia, especially if localized to this one region, cannot be accurately differentiated from lymphosarcoma, but the pathologic affinity and the clinical course of these two diseases are so closely similar that many authors regard them as manifestations of the same disease.

2. Tumors originating from the proliferation of the reticulo-endothelial cell element of the mediastinal lymph glands (Hodgkin's disease, Sternberg's type of hyperplastic tuberculosis, or pure endothelioma) will reduce within ten days following the treatment to about half of the original size, and will entirely disappear within from five to six weeks following the exposure.

Figure 3 *A* shows a mediastinal tumor, which was the only manifestation of a Hodgkin's disease. A clinical or roentgenologic differentiation from lymphosarcoma was impossible. The patient had the symptom complex of localized mediastinal tumor, and his condition was so grave that oxygen inhalation had to be administered during the roentgen-ray exposure. Figure 3 *B* shows the entire disappearance of the lesion, six weeks following treatment. Later there was extension to the supraclavicular glands (Fig. 3 *C*), but this also was successfully treated and the patient has remained well for a period of almost three years.



A B

Fig. 4.—A, aneurysm simulating mediastinal tumor; B, nine months following roentgen-ray exposure, the tumor remained uninfluenced by radiation.

Sternberg's type of hyperplastic tuberculosis shows the same response toward radiation, but, as a rule, there is a multiple involvement of the glands, so that a clinical or pathologic differentiation is possible. Endotheliomas of the mediastinum are exceedingly rare.

3. Other primary malignant tumors of the mediastinum, such as sarcomas originating from the areolar connective tissue (fibrosarcoma, large round cell sarcoma, alveolar cell sarcoma, etc.), or carcinomas or teratomas show a more or less pronounced reduction in size following the administration of a 90 to 100 per cent. skin unit dose, but they rarely disappear at the period of six weeks following exposure. In such cases the irradiation aids us in establishing the fact that we are dealing with a malignant tumor, but no accurate diagnosis can be made with regard to the type of the tumor.

4. Benign tumors of the mediastinum (lipoma, chondroma, fibroma, adenoma, myoma, neuroma, dermoid cysts, etc.), or pseudotumors (aneurysm, encysted pleural effusion or chronic abscess) remain uninfluenced by roentgen-ray exposure. Except for aneurysm, which can be excluded by clinical examination, surgical intervention is indicated in these cases. Therefore, a preliminary trial exposure in order to eliminate malignancies is of great importance.

Figure 4 *A* shows an upper mediastinal tumor that was first thought to be a sarcoma (probably lymphosarcoma). One hundred per cent. skin unit dose of radiation was administered over the tumor in order to test its radiosensitivity. Plates taken six weeks, three months and again nine months later (Fig. 4 *B*) fail to reveal any change in the size of the tumor. In consequence, a diagnosis of aneurysm with bronchostenosis[21] due to pressure was made.

CONCLUSIONS

The variation in the sensitivity of the different tumor cells toward radiation, usually given for therapeutic purposes, enables us to draw certain conclusions with regard to the type of tumor, in case no accurate clinical or pathologic diagnosis can be made.

In administering a standard quantity of radiation over different growths, there will be, because of the selective action of the rays, a variation in the reduction of the size of the tumors in the time unit, which we are able to measure. According to the rate of reduction, we are able to classify the mediastinal tumors in the following groups:

1. Tumors originating from the proliferation of the lymphocytic cell element of the mediastinal lymph glands or of the thymus (such as lymphosarcomas, thymomas, pseudoleukemia, lymphatic leukemia and simple lymphomas). These tumors entirely disappear within four to ten days following the administration of a 90 to 100 per cent. skin unit standard dose of roentgen rays over the tumor mass.

2. Tumors originating from the proliferation of the reticulo-endothelial cell element of the mediastinal lymph glands and thymus (Hodgkin's disease, Sternberg's type of hyperplastic tuberculosis, endothelioma). These tumors are reduced within ten days following the administration of a 90 to 100 per cent. skin unit dose to about one half their original size, and then entirely disappear within six weeks following the exposure.

3. Other primary tumors of the mediastinum, such as sarcomas, originating from the areolar connective tissue (fibrosarcoma, large round cell sarcoma, alveolar cell sarcoma, carcinoma of the thymus or thyroid glands and teratomas). These tumors show a more or less pronounced reduction in size following the administration of the 90 to 100 per cent. standard skin unit dose, but they rarely disappear at the period of six weeks following exposure. In such cases, the radiation helps us in establishing the fact that we are dealing with a malignant tumor, but no accurate diagnosis can be made with regard to the type of tumor.

4. Benign tumors of the mediastinum (lipoma, chondroma, fibroma, adenoma, myoma, neuroma, dermoid

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[21] Golden, Ross: The Effect of Bronchostenosis upon the Roentgen-Ray Shadow in Carcinoma of the Bronchus, Am. J. Roentgenol. **13**: 21 (Jan.) 1925.

cysts, etc.) or pseudotumors (aneurysm and encysted pleural effusion, chronic abscess). These tumors are very little or not at all influenced by radiation.

A further differentiation of the tumors of the foregoing groups is possible in the majority of instances by clinical or laboratory examination except for Group 4, in which surgical intervention is indicated.

110 Professional Building.

ABSTRACT OF DISCUSSION

DR. E. C. ERNST, St. Louis: Mediastinal tumors are not infrequently almost impossible of correct diagnosis, even though every conceivable clinical and the usual laboratory aid have been taken advantage of. Under such circumstances, the roentgen ray occasionally proves valuable, diagnostically and therapeutically. Mediastinal pathologic changes do not always present characteristic fluoroscopic visualizations; in fact, the many noncharacteristic variations of the outline of these shadows have been our chief diagnostic handicap in difficult and doubtful cases. In these cases, we employed rather mild dosage, but we soon found out that this was an error. I am glad to hear Dr. Evans state that he gives rather large doses. I did not understand whether he gave this dose at one sitting or distributed it over a period of four or five days or a week. We have followed the plan of spreading it over a period of a week. We have had a considerable number of recurrences, and rather than seeing the patient only after six months, we insist on seeing him also at nine and twelve months and a year and a half and two years.

DR. WILLIAM A. EVANS, Detroit: The practical application of the information contained in this paper depends on the variation in the response of the tumors to irradiation and on the variable amount of irradiation needed in the proper treatment of the various types of thoracic tumors. For instance, lymphosarcoma apparently is controlled by one series of treatment, whereas those tumors that respond more slowly, as of the type found in Hodgkin's disease, require two series, and the more resistant types of tumors require several series for their proper control At the present time we are using a water cooled tube, and the treatments are all administered within one week In lymphosarcoma and Hodgkin's disease, all of the lymphatic groups are treated, so that some patients are treated through as many as eighteen or twenty portals. When repetition of the treatment is indicated, the second series is given about ten weeks after the first. Each group of glands receives approximately a 90 per cent. depth dose.

Filtrable Viruses.—The term "filtrable virus" implies that the common property of the ultramicroscopic organisms is filtrability through a candle already proved impervious to ordinary small microbes. When the vesicular fluid of a vesicle in foot-and-mouth disease is taken and largely diluted—for example, 0.2 c.c. with from 30 to 50 c.c. of saline solution —and the mixture is filtered through a candle, the infective agent passes through apparently without loss. This fact, discovered by Loeffler and Frosch twenty-seven years ago, was the first definite "filtrable" virus; it still influences the bacteriologist to such an extent that filtrability is regarded as the final test of an invisible virus. The contents of a herpetic vesicle may be diluted with saline solution, filtered, and the filtrate is infective, as is determined by its power to cause pathologic changes in the brain of the rabbit. If, however, infective brain tissue be taken from a rabbit ill with, or dead of, herpetic encephalitis, and the tissue be ground thoroughly with sand, diluted with saline solution, filtered through sand (or spun) to remove coarse particles, and then passed through a fine candle, the final filtrate is noninfective. Here we can only conclude that the virus has become so firmly attached to brain tissue that it is not possible to separate them by ordinary mechanical processes Filtration, in other words, breaks down. Again, calf lymph which undoubtedly contains the virus of vaccinia may be filtered, but the filtrate does not contain the virus—Gye, W. E.: *Brit. M. J.* **2**:189 (Aug 1) 1925.

Clinical Notes, Suggestions and New Instruments

CARCINOMA IN AN ABERRANT THYROID AT BASE OF TONGUE

ASTLEY P. C. ASHHURST, M.D., AND C. Y. WHITE, M.D.,
PHILADELPHIA
Surgeon and Director of Laboratories, Respectively,
Episcopal Hospital

Aberrant thyroid tissue in the tongue is unusual. Carcinoma occurring in such an aberrant thyroid is almost unknown. Bérard and Dunet[1] state that there is not yet on record a proved case of cancer of a lingual thyroid. The following is the history and pathologic report of such a case:

REPORT OF CASE

A. C., a man, aged 56, admitted to the Episcopal Hospital, Nov. 22, 1916, complained of a lump on the back of his tongue near the right lower molar teeth. This lump had been noticed for more than twenty years; first as a small hard mass that very gradually grew larger. After about five years, it began to give him pain. Thirteen years previous to his admission to the Episcopal Hospital (i. e., in 1903), this mass had been removed at the Methodist Hospital, Philadelphia, by Dr. Walter Roberts, who reported to us that it was thought to have arisen in the lingual tonsil, and that microscopic examination had shown it to be entirely benign. Unfortunately, neither the sections nor the detailed report of the examination had been preserved.

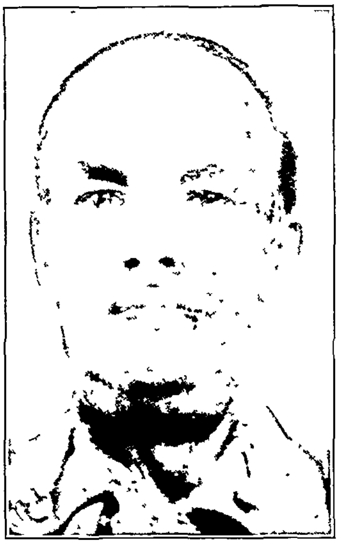

Fig 1.—Nine days after excision (electric cautery) of tumor growing from right base of tongue (carcinoma of aberrant thyroid).

The patient stated that about three years after this operation, he noticed the glands beneath the jaw increasing in size, first on the right side of the neck, later on the left side; the growth on the tongue gradually returned. He then came to the hospital, on account of difficulty in eating and swallowing, and pain in the tongue.

The mass was about 8 cm. long in its anteroposterior diameter, on the right side of the tongue involving its posterior half; its posterior border, close to the epiglottis, was raised 2.5 cm. from the base of the tongue, but its anterior border was not so high. The tumor extended laterally as far as the alveolus, but not beyond the midline. It was slightly ulcerated on its surface, was almost of wooden consistency, and was continuous with a mass in the floor of the mouth. The latter mass felt cystic. The submaxillary salivary glands and lymph nodes on both sides of the neck were visibly enlarged (Fig. 1) and were firmly attached to the deeper structures. The lower cervical lymph nodes were palpable, and they, as well as the epitrochlear, femoral, inguinal and iliac lymph nodes on both sides of the body, seemed larger than normal.

The tumor was evidently inoperable, with any hope of curing the patient, but his condition grew steadily worse while in the ward; on some days it was impossible for him to swallow. He had an evening rise of temperature to 100 F., and his white blood cells numbered from 15,000 to 19,000 on several occasions. It was finally determined to burn off the part of the tumor projecting above the tongue.

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[1] Bérard and Dunet: Cancer of the Thyroid, Paris, 1924, p. 454.

Operation was undertaken, December 12, with a tentative diagnosis of lymphoma of the lingual tonsil. Under intratracheal ether anesthesia, the lump was burned off the tongue by the electric cautery knife. Its base was almost of cartilaginous hardness. No bleeding occurred. Nothing was done to the mass in the floor of the mouth or to the submaxillary masses.

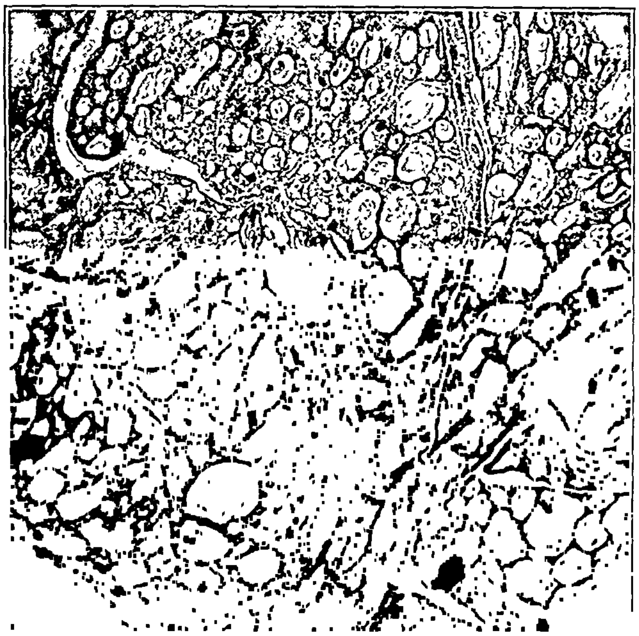


Fig. 2.—Lingual thyroid, showing carcinoma in other areas.

The patient improved rapidly after operation. His fever disappeared; he was free from pain and was able to swallow easily. The masses in his neck grew much smaller, and in less than two weeks they had contracted so much that wrinkles began to appear in the skin of the neck. He was kept under observation for several months, and continued to do well. Eventually, efforts to find him were ineffectual, and though no record of his death can be found in the vital statistics of the city of Philadelphia, it is not probable that he is still living.

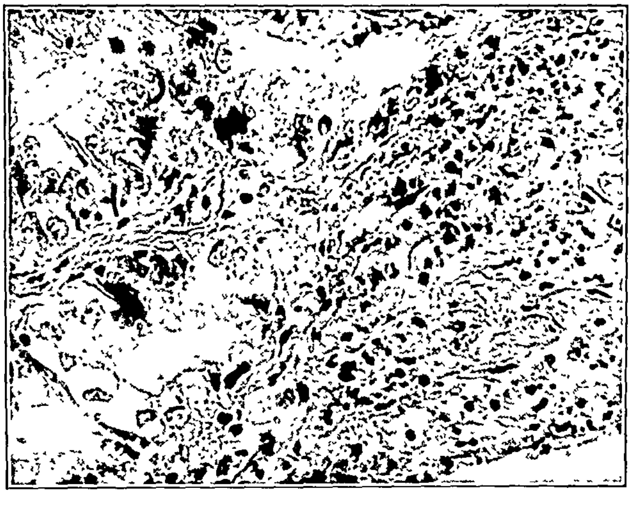


Fig. 3.—Carcinoma in lingual thyroid.

The pathologic report showed that the sections of the tumor from the tongue contained lobulated areas of typical thyroid tissue (Fig. 2), which in places almost bordered the epithelial surface of the tumor. There was a very small amount of connective tissue framework in the thyroid areas, yet more than in the normal thyroid. At one point in the section the epithelial covering was deficient, probably from ulceration.

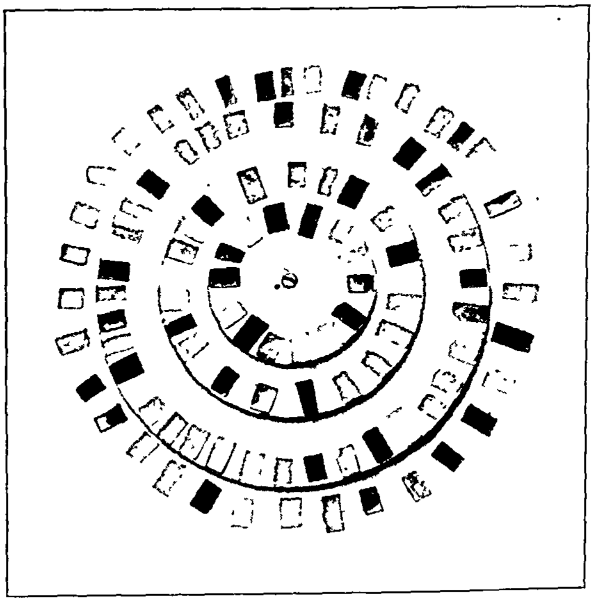
In certain areas of the section, running from typical lobules of thyroid tissue, were dense accumulations of epithelial cells, placed in bands or cords; and in still other areas there was a tendency to alveolar arrangement, that is, an arrangement typical of adenocarcinoma (Fig. 3). In other parts this carcinomatous arrangement was marked by increase of fibrous tissue, separating the epithelial cells into distinct cancer nests, with somewhat the appearance of scirrhous carcinoma. The carcinomatous areas bordered directly the epithelial covering of the tumor, causing thinning of the layers at certain points. The diagnosis was adenocarcinoma of the lingual thyroid.

257 South Sixteenth Street—Episcopal Hospital.

A NEW DEVICE FOR TESTING THE COLOR SENSE

Walter G. Nelson, M.D., Boston

For the last five years, part of my duties has been the examination of the color sense of applicants for various government services. Williams' lantern and the color skeins have both been employed and are still used. However, I have felt that the color skeins have certain disadvantages; among them, the length of time involved in giving the test, the fact that the loose skeins are apt to be misplaced or lost and also the fact that they are apt to become soiled, thus further confusing the applicant.



Color wheel for testing color sense.

About two and a half years ago, I devised a scheme that I think has all the advantages of the color skein system without most of the disadvantages. I have termed the test the "color wheel test," because of its construction. The device has compactness, being 15 inches square and about 2 inches high at its highest point. It also has permanency, for it is constructed of strong, though thin, wood. Metal could be used as well.

On the base are arranged three wheels, one above the other, decreasing in size. On the base and on each wheel are arranged small rectangles of colors in both primary and intermediate shades.

The base and wheels are covered with white enamel, which permits of washing when soiled. The colors are also of washable paint and can be cleansed at will, with a damp cloth.

With this arrangement any given color can be matched simply by turning the wheels; when an applicant performs the task correctly, there will be four colored rectangles in a row, all of the same color, but possibly of lighter or darker shades. If the test is not performed correctly, there will be a confusion of colors.

The person being tested can be required to enumerate each color in order, to name certain colors picked by the examiner, or to pick out all the shades of a given color. The color wheel can also be used to instruct applicants in colors, if they are merely color ignorant and not color blind.

It has been found from frequent examinations, in conjunction with the other tests, that color blindness can be successfully detected by this device. The applicant can see at a glance all the colors, and a great amount of time thus can be saved. The device is compact, and the colors cannot be lost.

If desired, small colored silk or wool skeins can be substituted for the paint colors.

Custom House

SPONTANEOUS SUBCUTANEOUS RUPTURE OF THE TRACHEA

J. W. Nixon, M.D., San Antonio, Texas

No mention is made of spontaneous subcutaneous rupture of the trachea in any of the standard textbooks on surgery, and a study of the literature discloses the infrequency of the condition. Therefore, this case seems to be of sufficient interest to warrant reporting.

M. H., a negress, aged 27, married, while waiting on the table, suddenly experienced a sharp pain in the region of the trachea. She immediately noticed difficulty in breathing, which rapidly grew worse. At the same time, her throat began increasing in size, growing larger with each breath. She was taken to the Robert B. Green Memorial Hospital, where I saw her thirty minutes after the onset of her trouble. On first sight, she appeared to have a large goiter occupying the entire space from the tip of the chin to the manubrium sterni. However, on examination, the tumor was soft and emphysematous, and felt very much like an air cushion. This mass became larger during expiration and smaller during inspiration. At this stage, the patient was breathing with much more difficulty and seemed to be in great distress. The difficulty of breathing was relieved considerably a few minutes later when the skin, which had become extremely tense, ruptured at a point posterior to the angle of the right jaw, anterior to the sternomastoid muscle. A second rupture occurred on the under surface of the arm 2 inches from the axilla, and still another, the third, appeared within five minutes' time at the lower posterior border of the axillary space. At this time, the patient was literally breathing through these three openings in the skin.

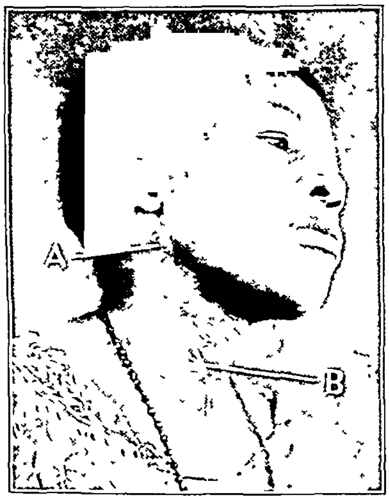


Fig. 1.—First rupture (*A*) and site of operation (*B*).

An operation was performed, Feb. 19, 1925, under ether anesthesia. With the idea of locating the site of the rupture, Dr. A. F. Clark was asked to make a bronchoscopic examination. This was done, but because of the hemorrhage in the trachea, it was impossible to locate the rupture by this method. An incision was then made, exposing the entire cervical portion of the trachea. This part of the trachea was found intact. A bloody froth was seen to be coming up from beneath the sternum, indicating a rupture within the thoracic cavity. Because of the patient's condition, a further exploration was not deemed advisable and a low tracheotomy was performed.

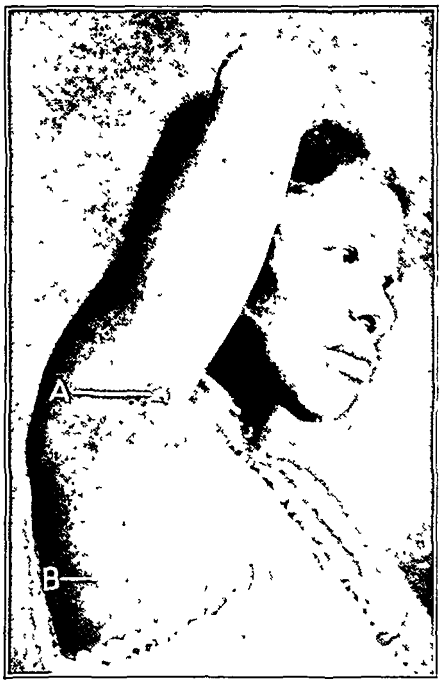


Fig 2.—Second (*A*) and third (*B*) ruptures

During the week following the operation, the patient had an elevation of temperature above normal, the highest being 102 F. The emphysematous condition, which had extended over the neck, right arm, the entire chest and the right axilla, had entirely disappeared at the end of fourteen days. However, a troublesome cough lasted for two months A blood Wassermann test, taken before her departure from the hospital, was negative.

Zeuch, in 1922, made an exhaustive study of the literature, and tabulated all the cases of subcutaneous rupture of the trachea which had been reported up to that time. Only fifty-three cases could be found. It is interesting to know that of all the fifty-three cases mentioned by Zeuch, in every case with the exception of three the rupture was caused by a blow or a violent strain on the trachea. These three cases, together with my own, make a total of four cases occurring spontaneously. This patient had had a cough a few days prior to the rupture, but at the time it occurred, she was not coughing.

The chief point of interest in connection with this case is the need of immediate treatment and the method of so doing. As soon as the diagnosis is certain, an incision should be made through the skin in the midline over the trachea. This should be done without waiting for an anesthetic. Zeuch calls attention to the importance of this procedure, and in my own case the immediate relief the patient obtained following the rupture of the skin in the three places mentioned clearly demonstrates the value of early relief from the pressure caused by the escape of air into the subcutaneous tissues.

331 Moore Building.

AN IMPROVED APPLICATION OF THE USE OF RENAL FLUOROSCOPY AT THE OPERATING TABLE

B H. Hager, M.D., Madison, Wis.
Urologist, State of Wisconsin General Hospital

The application of fluoroscopy at the operating table is now conceded to be an essential prerequisite to successful surgery for renal lithiasis.

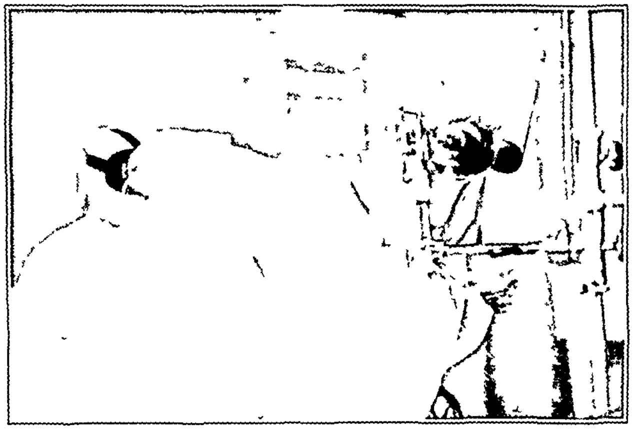


Fig. 1 —Head operating fluoroscope in use.

Braasch, in 1919, was the first to stress this principle, which has since been modified by various surgeons to meet their particular needs By preference, some continue to use the roentgen-ray film rather than the fluoroscope. Without considering the virtues and advantages of either method, the suggestion presented here offers an advantage over fluoroscopy, which entails the presence of a radiologist The roentgen-ray apparatus in use is a modern bedside unit with a 10 ma. Coolidge radiator tube, using a 5 ma. current.

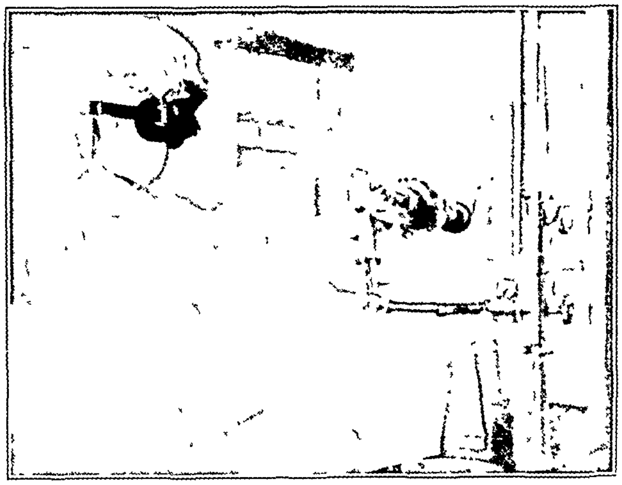


Fig 2 —The nose of the hood of the fluoroscope can be folded back, if accommodation is slow

The accompanying illustrations show the principles of its application. As soon as renal exposure has been obtained, a nurse slips the Patterson head operating fluoroscope over the surgeon's head, a sterile cover having been slipped over the nose of the fluoroscope The time required for accommodation is surprisingly short, much less than is usually anticipated. In persons in whom accommodation is slow, the nose of the hood can be folded back, as shown A colored glass protects the eyes from daylight and allows sufficient light for the surgeon to carry on his work As soon as accommodation occurs, the hood can be extended and the fluoroscopic search for stone begun The method is simple, and does not interfere with surgical asepsis; it allows the surgeon to localize the stone in the kidney with his fingers, and to regulate the roentgen-ray current with the foot switch.

A NEW OBSTETRIC VAGINAL SPECULUM

C O. McCormick, M.D., Indianapolis
Associate, Obstetrical Department, Indiana University School of Medicine

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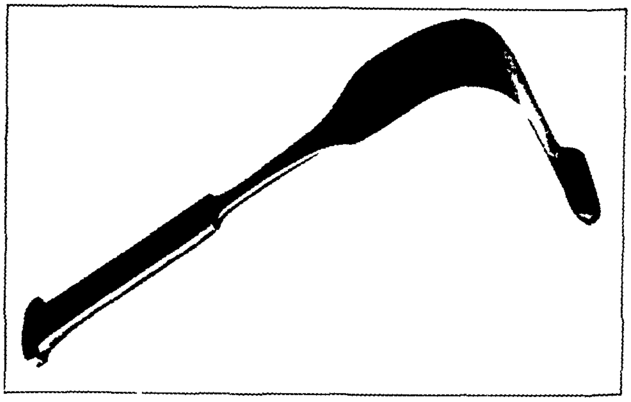

Fig 1.—Obstetric vaginal speculum.

To be used to the best advantage one should, of course, employ two of the specula, thus obtaining counterretraction. I have thus found them to be an excellent aid in exploring or repairing the cervix, and in repairing vaginal lacerations, regardless of how high, because they lend unusual exposure and make repair possible under direct vision. They are, likewise, applicable for perineal and episiotomy repair. If the *episiotomy is mediolateral, or the vaginal laceration lateral,* I have found it desirable to use the instrument on the side of the episiotomy or laceration with a retractor arm of 3 cm. width.

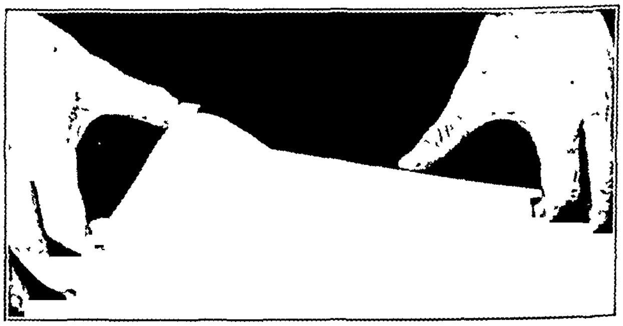

Fig. 2.—Short arm of obstetric vaginal speculum.

504 Medical Arts Building.

Special Article

REPORT OF COMMITTEE ON VISUAL STANDARDS FOR DRIVERS OF MOTOR VEHICLES *

Acting on the request of the section that the standards submitted last year be modified, your committee has carefully considered the criticisms and suggestions offered and desires to submit the following, hoping it may meet with the section's approval:

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SPECIAL OR COUNTY BOARDS OF PHYSICAL LICENSURE

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Respectfully submitted.

Conrad Berens.
William C. Finnoff.
Harry S. Gradle.
William Campbell Posey, Chairman.

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* Read before the Section on Ophthalmology at the Seventy Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1925, p. 369).

The Gilliland Laboratories, Inc., Marietta, Pa.

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CORPORA LUTEA, DESICCATED-P. D. & CO.—The dried corpus luteum of cattle and swine.

Actions and Uses.—See general article, Ovary, New and Nonofficial Remedies, 1925, p. 251.

Dosage.—From 0.24 Gm. to 0.6 Gm. (4 to 10 grains) daily.

Manufactured by Parke, Davis & Co., Detroit. No U. S. patent or trademark.

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AN IMPROVED APPLICATION OF THE USE OF RENAL FLUOROSCOPY AT THE OPERATING TABLE

B. H. Hager, M.D., Madison, Wis.
Urologist, State of Wisconsin General Hospital

The application of fluoroscopy at the operating table is now conceded to be an essential prerequisite to successful surgery for renal lithiasis.

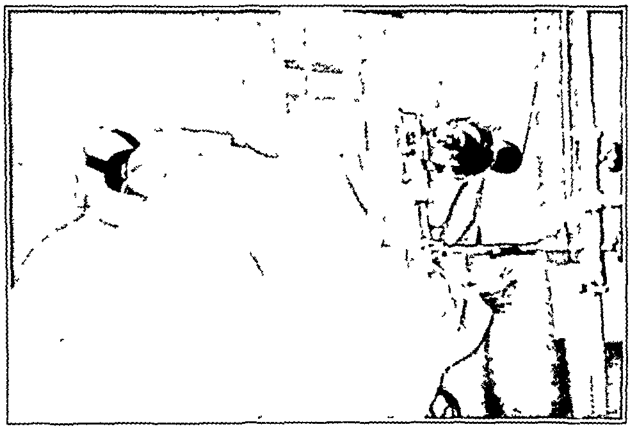

Fig. 1.—Head operating fluoroscope in use.

Braasch, in 1919, was the first to stress this principle, which has since been modified by various surgeons to meet their particular needs. By preference, some continue to use the roentgen-ray film rather than the fluoroscope. Without considering the virtues and advantages of either method, the suggestion presented here offers an advantage over fluoroscopy, which entails the presence of a radiologist. The roentgen-ray apparatus in use is a modern bedside unit with a 10 ma. Coolidge radiator tube, using a 5 ma. current.

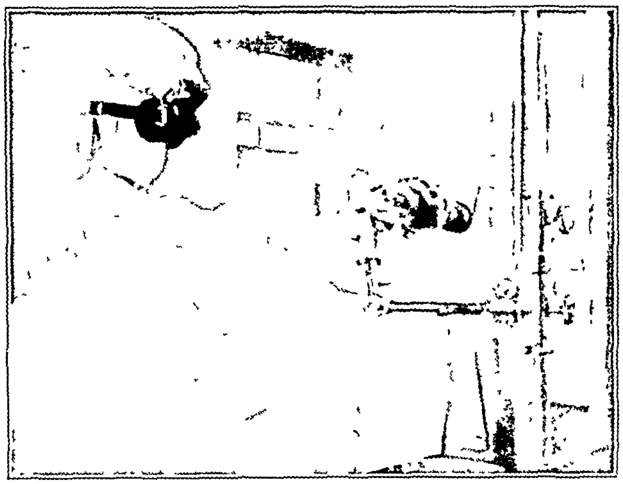

Fig 2.—The nose of the hood of the fluoroscope can be folded back, if accommodation is slow.

The accompanying illustrations show the principles of its application. As soon as renal exposure has been obtained, a nurse slips the Patterson head operating fluoroscope over the surgeon's head, a sterile cover having been slipped over the nose of the fluoroscope. The time required for accommodation is surprisingly short, much less than is usually anticipated. In persons in whom accommodation is slow, the nose of the hood can be folded back, as shown. A colored glass protects the eyes from daylight and allows sufficient light for the surgeon to carry on his work. As soon as accommodation occurs, the hood can be extended and the fluoroscopic search for stone begun. The method is simple, and does not interfere with surgical asepsis; it allows the surgeon to localize the stone in the kidney with his fingers, and to regulate the roentgen-ray current with the foot switch.

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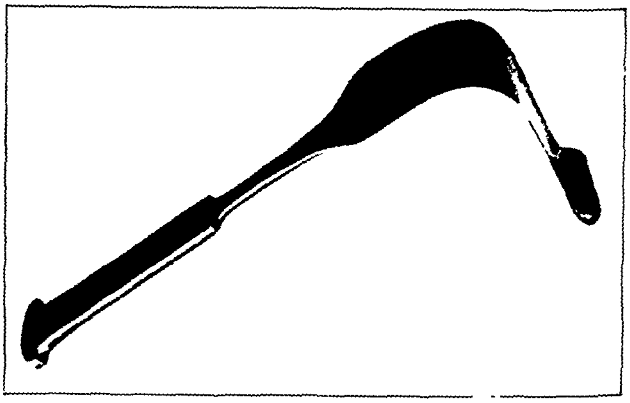

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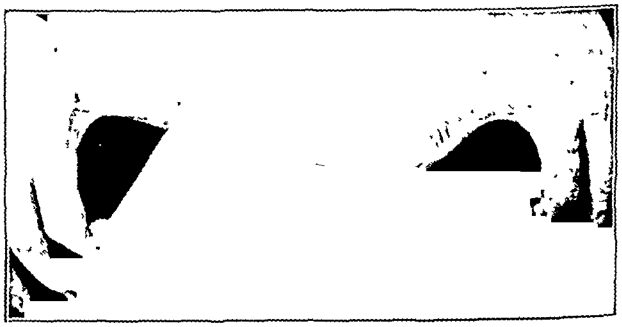

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WILLIAM C. FINNOFF.
HARRY S. GRADLE.
WILLIAM CAMPBELL POSEY, Chairman.

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[*] Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

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THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

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SATURDAY, OCTOBER 17, 1925

STATISTICAL STUDIES IN CANCER

Whether cancer mortality is actually increasing, or whether the increase is only apparent and is due merely to more frequent diagnosis of the disease, are matters of constant argumentation. The influence of heredity is likewise debated. Doubtless the answers lie in statistical studies expertly pursued. The publication of the article by Schereschewsky in this issue of The Journal causes us to take account again of our knowledge in this field. In 1923, William T. Howard[1] tried to answer two questions: Is cancer actually increasing? Is it really curable? He confined himself to material found in Baltimore, where cancer mortality has been reported with fair consistency since 1813. Correcting for the increase in recorded death rates, the influence of sex, race and age, and the effect of improvement in diagnosis and statistical classification, he concluded, first, that neither the incidence nor the mortality of cancer is increasing among those exposed to risk; secondly, that, from 1880 to 1920, mortality from cancer of the breast and uterus, which can be more accurately computed than that of other organs, not only failed to increase, but, in the last half of the period, declined. This decline he attributed to medical activities; that is, to cures.

Cancer was only incidental to Raymond Pearl's[2] analysis of the situation in 1924. His intricate study, however, arrived at two conclusions that are relevant here. The first of these states that the occurrence of cancer in any individual is but slight evidence of any inherited, constitutional weakness in him. Pearl,[3] furthermore, borrowing from Dublin and Baker, gave definition to the influence of foreign stocks on cancer rates.[4] The Italians, he said, compose practically the only foreign race group whose cancer mortality is lower than that of the native born group. Of the northern European stocks, cancer incidence is high among the British and Germans, and highest among the Irish. In addition, he showed that general mortality rates, of which cancer is an element, were relatively low among Austro-Hungarians and Russians. These findings are significant in view of the fact that the volume of our immigration has decreased among northern Europeans and increased among Italians and Slavs.

Pearl and Schereschewsky in some part cover similar fields, and one confirms the other. Schereschewsky points out that the more numerous immigration of Italians and Slavs, in whom cancer incidence is lower than it was in the earlier immigrant types, had, if anything, an effect to lessen rather than to increase the cancer death rate in this country. But Howard and Schereschewsky do not agree. To be sure, Howard claimed for his work nothing more than could be inferred from statistics obtainable in Baltimore. Schereschewsky, on the other hand, included in his study the ten original registration states, and his most significant conclusion is that, with corrections made, cancer mortality is actually from 25 to 30 per cent. higher than it was twenty-one years ago.

The question no doubt arises, Have we gained anything by these studies? Each investigator is eminent in the field, and yet two of them seem to disagree on that which we wish most to know; namely, whether or not cancer is on the increase. The apparent disagreement, however, is indicative of the value of careful analysis of great, and ever greater, masses of material. The reader of any statistical results must be careful to infer from them no more than the investigator himself infers.

SLEEP

For the healthy, sleep is a hygienic necessity to well being; for the sick, it often is a requisite in the restoration of health. The suspension of consciousness, one of the features of sleep, may be brought about artificially through the action of certain drugs that intoxicate or inhibit the cerebral functions, or through the production of cerebral anemia. Anesthesia and fainting, respectively, illustrate these phenomena; consequently the question has been raised as to whether sleep in any degree partakes of such features.

Certain observations in connection with sleep have repeatedly been verified. The pulse rate decreases; the blood pressure usually falls somewhat, and there are significant changes in the distribution of blood in the body. Studies of persons in sleep seem to indicate that the minimum arterial pressure is only gradually reached; that is, rarely before the third or fourth hour. As the early period of sleep is usually that of deepest stupefaction, it becomes unlikely that the lowering of blood pressure is closely connected with the loss of consciousness. Blankenhorn and Campbell[1] of the Lakeside Hospital, Cleveland, for example, have lately made careful records on many persons showing the occurrence of the minimum systolic point (101 mm.) at the fourth hour of sleep, a slight rise before waking, and an abrupt rise after waking to a point equal to the first hour of sleep. The diastolic pressure shows a like though lesser fall. In these persons during sleep the pulse rate showed a decrease parallel in its time relations to the changes in pressure. Consequently they argue that the fall of pressure is due mainly to the fall of pulse rate, though it is probably somewhat influenced by the peripheral relaxation. Landis,[2] who has made similar measurements with comparable or even lower findings, at the University of Minnesota, has reached the conclusion, often suggested before this, that the circulatory changes are resultant from sleep rather than causative of it. He argues that if the drop in pressure were causative, then reclining, being a position favorable for loss of tone, should lead to a more pronounced pressure drop than that of the semierect position, being more conducive to sleep. However, in his experiments on man the pressure and pressure curves were practically the same in either position, while the going-to-sleep process was no more difficult in one position than in the other. This offers further evidence to Landis' belief that the sleep process is one of removal of superimposed neural control and a return to a more primitive automaticity of function.

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[1] Howard, W. T.: The Course of Mortality from Cancer in Baltimore, J. A. M. A. 80:71 (Jan. 13) 1923.

[2] Pearl, Raymond: Studies in Human Biology, Baltimore, Williams and Wilkins Company, 1924.

[3] Pearl: Studies in Human Biology, p. 371.

[4] Pearl: Studies in Human Biology, pp. 222, 223.

MacWilliam[3] has presented some heretofore unappreciated aspects of the subject by emphasizing a difference between sound sleep, such as is familiarly attended with the characteristic lowering of blood pressure, and disturbed sleep and dreaming, which may be accompanied by remarkable elevations of arterial tension. In his observations, these changes were induced in the same persons by moderate exertions. In view of the rapid development of such changes in sleep, especially in dreams of motor effort and in nightmares, MacWilliam thinks it is evident that a formidable strain—harmless in the young and healthy person—may thus be thrown on the weak points of the circulatory system, whether these are cardiac with susceptibility to anginal attacks or to ventricular fibrillation and sudden death, or arterial with risk of hemorrhages, cerebral (especially in the recumbent posture), gastro-intestinal or pulmonary. If MacWilliam is correct, the conception of sleep as a period of quiescence and recuperation has thus to be qualified by the contingency of disturbed sleep with active calls on the nervous system, the heart and the blood vessels. The mechanism of the rise of pressure in disturbed sleep differs in some respects from that present in ordinary muscular exertion, since in the former the pumping action of working muscles, greatly augmenting the venous return to the heart, is absent. In other words, what is true of many factors in life seems also to apply to sleep: most sleeps are good, but some may be far better than others.

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[1] Blankenhorn, M. A., and Campbell, H. E.: The Effect of Sleep on Blood Pressure, Am. J. Physiol. **74**: 115 (Sept.) 1925.

[2] Landis, C.: Changes in Blood Pressure During Sleep as Determined by the Erlanger Method, Am. J. Physiol. **73**: 551 (Aug.) 1925.

[3] MacWilliam, J. A.: Blood Pressures in Man Under Normal and Pathological Conditions, Physiol. Rev. **5**: 303 (July) 1925.

IS ACRODYNIA A NEW DISEASE?

Publicity is a potent factor for good in more than one walk of life. Even in such seemingly remote byways as clinical diagnosis and therapy, the heralding of unsuspected facts relating to disease may bring unanticipated benefits. Thus it sometimes happens that accurate description of supposedly rare human abnormalities serves to stimulate the memory of the less critical practitioner and help him recognize the real significance of pathologic entities that he may often have encountered without appreciation of their possible import. The record of a disease syndrome supposed to be novel sometimes elicits evidence that it has long been familiar to physicians who have not suspected its possible larger meaning. This seems to be true of acrodynia, a train of symptoms affecting infants and young children and described with considerable precision a few years ago by Byfield.[1] The clinical features of the disorder are manifold. There are general symptoms, such as anorexia, loss of weight and weakness. Nervous manifestations include hyperirritability, sleeplessness, paresthesia and photophobia. Dermatologic symptoms are especially conspicuous in such forms as hyperhidrosis, miliaria, desquamation, erythema and alopecia. The term acrodynia, referring to the painful extremities, describes one of the most typical symptoms of the complex, although it gives no indications of nutritional or neurologic involvements in the etiology.

That the disease here referred to is by no means uncommon is indicated by the rapid succession of case reports that followed the early exposition of the subject five years ago. Analogous, if not identical, maladies had been encountered far and wide in pediatric practice. Australia furnished a liberal number of typical cases. The writers in England also presented a quota of them. In fact, it now appears that what was regarded in 1920 as a new disease is a long recognized clinical entity classified under various names. These include the expressions "pink disease," "rawbeef feet and hands," "erythredema," and "dermatopolyneuritis," as well as the name acrodynia, which Weston[2] introduced to differentiate the disorder from pellagra, which it resembles in several respects.

Despite this multiplicity of designations, there remains a fairly definite clinical picture, which is beginning to be recognized by physicians who deal with childhood. Its etiology is not yet clear. Rodda[3] reminds us that because of its surmised resemblance to pellagra and the announcement of the "new" disease at the time when physicians were much concerned with vitamins, it is not strange that this was thought to be a deficiency disease. Rodda's own studies at Minneapolis indicate that acrodynia is usually preceded or accompanied by an upper respiratory infection. He therefore looks on it as the result of focal infection, predominantly in the tonsils and the adenoids. In his own experience, early recognition of the disorder and prompt removal of the tonsils has been followed by speedy and complete recovery in all of the youthful patients. In any event, mere dietetic and palliative treatment does not seem sufficient to avert the dangers of acrodynia. At a time when the therapeutic outlook for it has not been propitious,[4] any reasonable suggestion of rational treatment deserves a respectful hearing. Successful treatment should soon follow in the wake of the better understanding of the symptomatology. Probably, as Rodda suggests, before the advent of the roentgen ray and the Wassermann and tuberculin tests, acrodynia was at times confused with tuberculosis and syphilis, or with malnutrition of undetermined origin. The occasion for this has now passed.

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[1] Byfield, A. H.: A Polyneuritic Syndrome Resembling Pellagra-Acrodynia (?) Seen in Very Young Children, Am. J. Dis. Child. **20**: 347 (Nov.) 1920.

[2] Weston, W.: Acrodynia, Arch. Pediat. **37**: 513 (Sept.) 1920.

PREOPERATIVE DIGITALIZATION

Tradition undoubtedly contributes much of practical benefit to medicine, for it often embodies the accumulated experience of many physicians in matters that have not been subject to strict experimental test. Thus, the undoubted virtues of fresh air and sunlight in certain conditions have a traditional history of many years, whereas the explanations of the favorable reactions which they represent are only now beginning to find expression in scientific literature. There is another type of tradition, however, represented by the blind acceptance of statements supposedly inspired by some "authority." These tend to be handed down as guides to practice, often regardless of common sense or rigorous logic, and sometimes in the face of conflict with demonstrable phenomena. These traditions may represent all shades of conviction, from fixed beliefs to wavering impressions. Because he has been told so, the convert may feel certain that night air causes malaria and may even suspect that the eating of fish is responsible for the genesis of carcinoma. It is this type of traditions that needs to be subjected to critical evaluation and clearly discussed in the light of demonstrable facts.

The dangers of "circulatory failure" and other less formidable postoperative complications are eventualities of practice that deeply concern the surgeon. Among the beliefs that are at present entertained with respect to the possibility of averting or at least minimizing such dangers is the widely claimed efficacy of digitalis in surgical patients. One may read of the advantage of preoperative digitalization in "tiding over" the periods of postoperative depression, or of averting the incidence of pneumonia after surgical intervention. A student of these varied views has remarked that most writers who recommend the frequent or routine practice of preoperative digitalization attribute its beneficial effects to the action on the blood pressure; more specifically, to its influence in maintaining pulse pressure. These are features, however, that are at present susceptible of accurate determination that ought to supplant mere conjecture with reputable facts. The problem at issue is, indeed, one of large moment in everyday clinical routine.

Notable progress in determining the facts with regard to the effects of preoperative digitalization has been made by a group of investigators[1] at the Yale University School of Medicine. The method consisted of determining the blood pressure and taking electrocardiograms at frequent intervals throughout operation, and observing any factors in the administration of the anesthetic or the surgical procedure that might be responsible for changes. Subsequently, also, the same sort of data were accumulated during the postoperative period. The observers concluded that measurements of blood pressure after operation are of no value in estimating the likelihood of complications or the rapidity of convalescence. Changes in arterial pressure in either direction seemed to be without clinical significance except when there was extreme lowering of the systolic and pulse pressures in cases of shock; in them, frequent observation of the blood pressure seemed essential. Electrocardiograms taken during operation frequently showed premature beats, paroxysmal tachycardia and disturbances of the pacemaker. These were not associated with demonstrable changes in the circulation and were regarded as without clinical significance.

A comparison of the observations on digitalized and nondigitalized patients disclosed only a few differences. There was a postoperative fall in systolic and pulse pressures in a greater proportion of the digitalized persons. Thus there was some evidence that the drug tends to cause precisely the change in blood pressure that it is usually given to avert. In any event, no evidence was secured of a beneficial effect of digitalis on postoperative complications or deaths. Many further records are essential before a final verdict can be rendered regarding the possible prophylactic value of the earlier administration of digitalis to surgical patients. The behavior of older persons, in particular, has not been thoroughly studied. But the available evidence from the Yale records gives no support to the necessity or justification for routine employment of digitalis preoperatively in patients who possess normal hearts.

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[3] Rodda, F. C.: Acrodynia: A Clinical Study of Seventeen Cases, Am. J. Dis. Child. **30**: 224 (Aug.) 1925.

[4] Bilderbach, J. B.: Acrodynia, J. A. M. A. **84**: 495 (Feb. 14) 1925.

[1] Marvin, H. M., and Pastor, R. B.: The Electrocardiogram and Blood Pressure During Surgical Operation and Convalescence. Observations on Thirty Patients, Arch. Int. Med. **35**: 768 (June) 1925. Marvin, H. M., Pastor, R. B., and Carmichael, Mabel: Effect of Routine Preoperative Digitalization, ibid., p. 782.

Current Comment

NEW HOME FOR NEW YORK ACADEMY

October 30, the New York Academy of Medicine will hold ceremonies in connection with laying the corner stone of its new building. The academy was founded in 1843 to promote the science and art of medicine, maintain a public medical library and promote public health. Its meetings have been open to all physicians and medical students; its public medical library is the only one in New York, and the Committee on Public Health, Hospitals and Budget has been active. Thus, the academy has served well its original triplicate purpose. In 1924, as the result of conferences held to discuss ways and means of expanding the activities of the academy, the Carnegie Corporation pledged a larger building and the Rockefeller Foundation an endowment. These gifts aggregate nearly three million dollars. Such support makes possible six acquisitions: a full-time director, an executive librarian, a new library service, a bureau of clinical information, a committee on medical education, and a monthly bulletin. Of these, the bureau of clinical information publishes a daily list of operations in New York City; the Committee on Medical Education oversees local postgraduate courses and internships and gives information both to American physicians who intend studying abroad and to foreign physicians who wish to study in America. The academy has provided that none of its activities shall overlap those of the American Medical Association, the Association of American Medical Colleges, or the councils on education and on pharmacy of the American Medical Association. Here cooperation between great institutions has resulted in widening the field of usefulness to the public of the New York Academy and of the physicians of the metropolis.

"WHO'S WHO IN AMERICAN MEDICINE"

Nearly a year ago physicians were circularized by the concern "Who's Who Publications, Inc.," "M. L. Lewis, president." The letter was to the effect that a publication known as "Who's Who of American Physicians and Surgeons" was to be issued, and it was to contain brief biographical records of those physicians and surgeons of America "who had rendered marked service to their fellow men." The editor of the book was given as Winfield Scott Downs. Physicians were asked to furnish biographical data, and any suspicion as to the bona fides of the publication was allayed by the statement: "Paid material is not accepted for this publication. Hence in supplying us with your biographical material you are under no financial obligation. . . ." Undoubtedly many physicians sent in biographical data in the belief that the book was to be what was claimed, and not a few readers of THE JOURNAL wrote asking whether the proposed publication was one in which confidence might be placed. They were told that the proposed book seemed to be a routine publication venture. This implied endorsement THE JOURNAL now wishes to withdraw. The latest letter sent out by Who's Who Publications, Inc., brings out the fact that the name of the proposed book has been changed to "Who's Who in American Medicine." The letter also carries with it a subscription blank and states the condition under which a physician's biography will appear, thus: "Your biography has been selected to appear in the work, the only obligation being the acceptance of one copy of the publication, payable on delivery." From this it would appear that "Who's Who in American Medicine," instead of being a biographical list of physicians and surgeons "who have rendered marked service to their fellow men," will be a list of those physicians and surgeons who are willing to pay "$10 per copy plus cost of delivery" for the book in which their biographies will appear.

ADOLESCENT GOITER IN NEW YORK

If we accept the recent dictum that simple goiter is one of the easiest of known diseases to treat, success will depend in some measure on the prompt recognition of the condition that demands a remedy. Thyroid enlargements make their appearance at various periods of life, notably in the fetus, in adolescence, during pregnancy and at the menopause. Simple goiter has been defined as "a compensatory hyperplasia of the thyroid gland, developing during the course of certain metabolic disturbances of unknown origin, but immediately dependent on a relative or on an absolute deficiency of iodin." It is on such a condition that administration of iodin has now abundantly been demonstrated to exercise both a prophylactic and a curative effect. Surveys made in many parts of the country since the classic report of Marine and his associates about eight years ago have indicated an unanticipated incidence of thyroid enlargement among schoolchildren in certain localities often spoken of as goiter belts. For the most part these have been in the interior of the continents at considerable distances from the coastal regions. Statistics indicating, as they have, a percentage incidence of adolescent goiter ranging from 30 to 80 cannot be contemplated with complacence. It is little wonder, therefore, that both the medical profession and the lay public have become aroused to the advisability of effective measures to avert an unnecessary defect of childhood. There no longer is debate about the need of therapeutic or prophylactic attention; discussion seems at present to be confined to a consideration of the agencies best adapted to undertake the work. A rivalry between the school physician, the public health officer and the family physician has attended the efforts in some districts to promote child welfare. In respect to simple goiter, certain districts have regarded themselves as essentially immune because of their geographic location. This is true of the Atlantic seaboard. But a survey of more than 11,000 children in New York City by the Division of Educational Hygiene of the Department of Education[1] indicates an incidence of thyroid enlargement amounting to 20 per cent. among school girls of the metropolis. Such facts strongly suggest that the problem of goiter prophylaxis should not be overlooked in any place, however favorably it may appear to be situated. Large cities are centers of migration, which means environmental change for many of the population. It should also be realized that thyroid enlargement may start as a congenital defect or may begin at puberty or during pregnancy. It may not be enough to supply iodin to the adolescent. Perhaps the tendency to thyroid enlargement would be decreased if greater attention were paid to prophylaxis in expectant mothers. Information has accumulated to an extent that makes neglect inexcusable.

CARBOHYDRATE CONSERVATION IN THE BRAIN

Many years ago Huxley remarked that, in ultimate analysis, life has three legs to stand on: the heart, the lungs and the brain. In the active metabolism of the body, the lungs are concerned directly only in minor degree. Their indispensable rôle in respiration involves the functioning of a highly perfected diffusion membrane. The heart, on the other hand, is the seat of constant chemical reactions responsible for its contractile activity. What is involved thereby is indicated by a recent calculation that the maximal power of the heart is about equal to the amount of work involved in lifting the weight of the body one meter per minute.[2] Cerebral metabolism is not so conspicuous; in fact, it is only in very recent times that unmistakable quantitative evidence of chemical changes in the nervous tissue incident to activity have been accurately recorded. It has long been known that the heart is among the last of the organs to suffer depletion of its "reserves" when the body is under stress. In starvation, the cardiac muscle only slowly shows any noteworthy change in composition. The storage of carbohydrate long remains unimpaired. It is of obvious advantage that those organs which are most essential should be able to maintain their functions as long as possible when unfavorable conditions of nutrition develop. Like the heart, the brain also seems to conserve its carbohydrate reserve with great tenacity, according to experiments by Asher and Takahashi[3] at the University of Berne, Switzerland. Only under conditions that favor a state of exaggerated excitability of the central nervous system are the stored carbohydrates of the brain drawn on.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Malaria Control at Little Rock.—The malaria control division of the Little Rock Health Department cleaned 209½ miles of ditches last year and used about 16,000 gallons of oil in its malaria control work. Learning from Memphis that waste oil from oiling stations mixed with two parts of fuel oil could be used to prevent the propagation of mosquitos, 3,180 gallons were obtained from oiling stations free of charge. The malaria control area of 68 square miles, required the services of a superintendent, four inspectors, a truck driver, three ditchers and six oilers; the total cost of the work was $10,733.96. There was an increase last year in the number of cases and deaths from malaria, which the health commissioner considered probably due to frequent trips by residents into malarial districts without protection and to an increase in the number of malarial mosquitoes in the county outside the city.

CALIFORNIA

Fined for Advertising.—It is reported that Harry J. Morris, Los Angeles, was sentenced to pay a fine of $100 or serve sixty days in jail for violating the Medical Practice Act. The complaint that led to Morris' arrest was based on an advertisement in the Los Angeles Sunday *Times*. The sentence was suspended for sixty days provided Morris changes his advertising to comply with the law.

DISTRICT OF COLUMBIA

Grand Jury's Report on St. Elizabeth's Hospital.—The federal grand jury has filed in the supreme court of the District a report in which it suggests that Congress authorize the President to appoint a commission to investigate St. Elizabeth's Hospital, where 4,500 insane patients are confined. At the same time the grand jury returned an indictment charging William McIntire and Irwin R. Sweeny, attendants at the hospital, with manslaughter in connection with the death of William Green, a colored inmate, who died, July 17, 1924, due, it is said, to "a beating" he is alleged to have received. The grand jury expressed its belief that "there are many persons now confined there who are not now and never were insane, but who have been sent there for ulterior motives." The report complains further of overcrowding of patients, the "most deplorable conditions existing as a result; there are some rooms intended to accommodate twenty single beds containing more than forty beds, and there is scarcely room to walk between these beds. . . . If the overcrowded condition of the hospital is not remedied at an early date, we fear that the percentage of inmates becoming hopelessly insane will be greater than those cured, in spite of the best efforts of the superintendent and his assistants." The grand jury gave especial attention to conditions existing in Howard Hall, where the criminally insane are incarcerated and those who became insane while serving sentences in federal prisons. The report states that: "There is an open court in the center of the building about one hundred feet square called by the inmates the 'bull pen.' This is the only recreation space available and here the dangerous as well as the noisy patients mingle with those whose minds are almost normal. The sky is barely visible to the patients while they are in this court, and a glimpse of the outside world may be had by looking over the twenty-four foot wall." The grand jury's report generally approved the situation in other portions of the hospital.

The day following the presentation of the grand jury's report to the court, Secretary of Interior Hubert Work and Dr. William A. White, superintendent of the hospital, held a conference. Secretary Work vigorously denied the charge that any patients at the hospital are sane or are held there through "ulterior motives"; he stated that he was well aware that the hospital was overcrowded and that he has been making arrangements to ask Congress for appropriations to construct buildings to meet the overcrowded conditions. "I have found," said Dr. Work, "that in the artificial atmosphere of the insane asylum many inmates appear sane, but if they are permitted to be at large again they soon establish the fact that they are insane. I have no doubt that one or more of the inmates impressed members of the grand jury, but you may be sure that if any of them were sane, Dr. White would only be too glad to release them." Secretary Work further called attention to the fact that there are sixty murderers confined in Howard Hall, and that the guards who had to maintain order among them had his sympathy. "It comes to a question of whether a guard must protect himself against these criminal patients or submit to injury. It is an extra-hazardous occupation." The present vogue of sending criminals to insane asylums instead of to prisons makes the care of an institution like St. Elizabeth's arduous.

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[1] Goldberger, I. H., and Aldinger, A. K.: Goiter Incidence in School Girls of New York City, Am. J. Dis. Child. **29**: 780 (June) 1925.

[2] Henderson, Yandell; and Haggard, H. W.: The Circulation and Its Measurement, Am. J. Physiol. **73**: 193 (June) 1925.

[3] Takahashi, K.: Ueber experimentelle Kohlehydratverarmung und den Kohlehydratstoffwechsel des Gehirns, Biochem. Ztschr. **154**: 444, 1924; Asher, L., and Takahashi, K.: On the Experimental Production of Lack of Carbohydrates, and on the Carbohydrate Metabolism of the Central Nervous System, Proc. Soc. Exper. Biol. & Med. **22**:238, 1925.

ILLINOIS

Personal.—Dr. Elbert L. Damron, Effingham, has been appointed physician for the Pennsylvania Railroad to succeed the late Dr. James H. Walker.——Mr. W. D. Wrightson failed to be reappointed as public health officer of the Quincy public health district. The board ruled that the office should be held only by a physician. A new health officer has not yet been appointed.

Baby Conferences.—About 10,000 babies were examined physically and mentally at more than seventy baby conferences held at the various fairs this fall under the auspices of the state health department. The predominating defects found were nutritional—rickets, bowlegs, knock-knees, decayed teeth, enlarged heads, flabby muscles and undersize. Each baby was rated on the basis of an examination by specialists.

Health Officers' Meeting.—Dr. Isaac D. Rawlings, state health director, has called a meeting of all health officers in the state at the National Catholic Community House, East St. Louis, 1:30 p. m., October 20. Dr. W. A. Evans, Chicago, will preside, and among others on the program are Dr. William H. Parke, New York, Surgeons C. C. Pierce and Thomas Parran, Jr., U. S. Public Health Service, and Dr. Jacob C. Krafft, Chicago, president, Illinois State Medical Society.

Infantile Paralysis.—Twenty-two cases of infantile paralysis were reported to the state department of health the first week of October, which was about double the number of each of the two preceding weeks. In July, August and September 148 cases were reported against 117 for the same months of last year, while the total number of cases up to October 5 was 213 against 186 for the same period last year. Twenty-seven cases were reported from Cook County between September 1 and October 5; thirteen from Fulton County; eight from Henry; six from Livingston. The public schools at Cornell were closed when three cases developed in that community.

Chicago

Norwegian-American Hospital Holds Graduate Clinics.—The staff of the Norwegian-American Hospital has arranged a series of graduate clinics for the winter months, covering the various phases of medical sciences, giving members of its staff and physicians in the vicinity opportunity to secure advanced information. On Monday of each week, regional anatomy is considered by Dr. O. F. Kampmeier; on Tuesday, physical diagnosis by Dr. Maurice Lewison; on Wednesday, internal medicine by Dr. S. R. Slaymaker; on Thursday, a series of urologic clinics in which Drs. B. C. Corbus, V. J. O'Conor, R. B. Herbst and H. C. Rolnik alternate; Friday evenings are to be devoted to case presentations by members of the staff, and Saturday evenings to pathologic conferences and histories under the direction of Dr. W. G. Gibbs. The program is under the direction of Dr. Harry Noskin.

Society News.—Prof. Thomas V. Smith, Ph.D., department of philosophy, University of Chicago, and associate editor of the *International Journal of Ethics*, gave the address at the annual dinner of the Chicago Medical Society, October 14. Dr. Archibald H. Logan, Rochester, Minn., and Dr. Alexander A. Goldsmith will address the society, October 21, on "Idiopathic Ulcerated Colitis, with Special Reference to Etiology and Treatment," and "Amebic Dysentery," respectively.——Drs. Herman L. Kretschmer and Edwin W. Hirsch will address the Chicago Urological Society, Hotel Sherman, October 22, on "Carcinoma of the Prostate," and "Urethral Mucosa and Glands" (lantern slide demonstration), respectively.——The Chicago Council of Medical Women will meet, October 27, 8 p. m., at the Women's City Club.——The American Academy of Ophthalmology and Otolaryngology will hold a special scientific session, October 20, 8:45 p. m., at the Sherman House. The subject will be deafness and the meeting will be open to the public.——The Northwest Branch of the Chicago Medical Society will sponsor a health show at the Logan Square Masonic Temple, 2451 Kedzie Boulevard, December 3-5, which will be endorsed by the Illinois State Medical Society. The physical examinations to be given will include children and adults. Physicians are invited to offer their services as examiners. There will be a meeting of physicians, October 23, at the temple to explain the method of awards, the instruction being given by Dr. Jacob C. Krafft, president of the Illinois State Medical Society.——Among the speakers at the recent annual meeting of the Medical Society of the Missouri Valley, St. Joseph, Mo., were Drs. Robert H. Babcock, S. R. Slaymaker and Vincent J. O'Conor, who spoke on "Functional Disorders of the Heart," "Electrocardiograph Interpretations" and "Diseases of the Kidney," respectively.

INDIANA

Personal.—Dr. Larue D. Carter, Indianapolis, was elected president of a new organization of Indiana World War physicians at an organization meeting held during the annual convention of the state medical association at Marion; Dr. Arett C. Arnett, Lafayette, was elected secretary.

Survey of Bakeries.—The state board of health recently made a survey of 150 bakeries in every part of the state. From the standpoint of sanitation only one was found excellent, seventy-four good, sixty-seven fair, six poor and two bad. The survey was intended primarily to obtain information about the raw materials used in baking, and it was found that 137 bakeries used vegetable fat in place of lard, that the vanilla in almost every bakery was an imitation or a compound; that "lemon" and "cream" as applied to pies have no specific meaning, lemon pies being flavored with lemons and acidified with citric acid, and that "cream" pies sometimes contain no dairy products whatever. Forty-eight bakeries used jam and jellies for rolls, while seventy-eight used imitations or compounds; two-thirds of the bakeries used yellow coloring material and in some instances to simulate the coloring of eggs. With but few exceptions, however, these and other raw materials found were of the highest quality.

IOWA

Personal.—Dr. Harold E. Farnsworth has resigned as city health officer of Storm Lake, and Dr. Edgar F. Smith has been appointed to that position.

City Hospitals Merged.—An ordinance was recently passed by the city council of Des Moines providing for the consolidation of all buildings, properties and medical equipment now used by the city of Des Moines for hospital purposes with the Polk County Hospital.

Dr. Lambert Resigns.—Dr. John J. Lambert, for thirty years an instructor in anatomy, histology and embryology at the University of Iowa College of Medicine, Iowa City, has resigned, effective November 1, to become associated with his brother, Dr. Charles I. Lambert, in practice in New York.

LOUISIANA

Mosquito Conference.—Mayor Behrman, New Orleans, issued formal invitations to a conference, October 14, to the mayors of thirty cities in Louisiana, Mississippi and Alabama and to the presidents of police juries in fourteen parishes in Louisiana, to make plans for a comprehensive survey to determine the best methods of attacking the problem of marsh mosquitoes. Governor Fuqua issued invitations to the conference, it is reported, to the governors of adjoining states, the secretary of agriculture, the Surgeon General, U. S. Public Health Service, and other federal sanitation experts.

Quarantine Changed for Latin American Ships.—Heretofore ships from Latin American countries have been compelled, on account of quarantine, to delay, in some cases, a considerable time at quarantine, while ships from European countries, against which there are no quarantine restrictions, have been permitted to proceed directly to the sub-boarding station at Flood Street. It has been announced that after November 1 Latin American ships entering the port of New Orleans will also be permitted to proceed directly to Flood Street, the change having been authorized by the Surgeon General, U. S. Public Health Service.

MASSACHUSETTS

Harvard Appoints Tutor for Premedical Students.—Harvard University has appointed Dr. Hallowell Davis, Boston, as official tutor and instructor in the premedical sciences, whose duty it will be to aid premedical students properly to correlate their work and advise them in planning schedules which will lay the best foundation for a medical education.

New Health Unit.—The cornerstone for the $250,000 health unit to be erected at Paris and Emmons Streets, East Boston, from the George R. White Fund was laid, October 1. This will be the second health unit provided from the White Fund, the first one being in the north end of Boston. It will be of fireproof construction, with cafeteria and locker rooms in the basement, waiting rooms connected with dental, eye, preschool and prenatal clinics on the first floor, and an auditorium with stage, motion picture booths, and offices for welfare and nurses societies on the second.

Society News.—The Worcester District Medical Society held a joint meeting with the Worcester Ninth District Society at the Country Club, Worcester, September 9. Dr. Harold M. Frost spoke on periodic health examinations.——The four western districts, Berkshire, Franklin, Hampden and Hampshire, held a joint meeting at Belchertown, September 15; eighty fellows attended the dinner. Among the speaker were Dr. James S. Stone, Boston, president of the state society, Dr. John M. Birnie, of the board of registration in medicine, Dr. Theodore S. Bacon, a trustee of the Belchertown State School, and Dr. George E. McPherson, superintendent of the school.

MICHIGAN

Typhoid Outbreak Controlled.—The outbreak of typhoid fever at Alston, amounting to about twenty cases, has been investigated by the state board of health and found to be under control. Dr. Charles H. Benning, a representative of the state board from Lansing, went to Alston to supervise antityphoid vaccinations. A feature of the outbreak was, it is reported, that no ex-soldier who had been vaccinated during the World War against typhoid contracted the disease in this epidemic.

"Minimum Program" for County Societies.—To determine the problems of county medical societies and help them develop a constructive program, the state society has arranged a series of conferences of county officers and councilors, to be held by councilor districts. Seven conferences were held in September and three have been arranged for October. A "minimum program" for county society work has been carefully prepared and unanimously approved by the council. The *Journal of the Michigan State Medical Society* says that nowhere else in the United States has this plan been contemplated.

Wayne County Medical Society.—Dr. Charles L. Mix, Chicago, professor and head of the department of medicine, Loyola University School of Medicine, addressed the medical section of the Wayne County Medical Society, October 12, on "Toxic Goiter." Dr. Herbert M. Rich will address a general meeting of the society, October 19, on "Indications for Thoracic Surgery in Pulmonary Tuberculosis;" Dr. Max Ballin will discuss the surgical side of the subject. The Public Education Committee of the society requests that all members of the Wayne County Medical Society who care to give lectures to the public this year notify the chairman, Dr. James H. Dempster, promptly.

MINNESOTA

Personal.—The board of regents of the University of Minnesota has appointed Dr. Henry E. Michelson as director of the department of dermatology and syphilology at the university.——Dr. Ernest L. Strader, Louisville, Ky., has been appointed superintendent and medical director of the Deerwood Sanatorium, Brainerd, to succeed Dr. James K. Anderson, who resigned to take charge of Sunny Rest Sanatorium at Crookston. Dr. Strader for several years has been connected with the Waverly Hills Hospital, Louisville, and the Mineral Springs Sanatorium at Cannon Falls, both tuberculosis sanatoriums.

MISSISSIPPI

Society News.—Dr. Seale Harris, Birmingham, Ala., addressed the clinical meeting of the East Mississippi Eleven Counties Medical Society at Amory, September 15, on "Diet in Peptic Ulcers," and among others, Dr. John A. Rayburn, Ecru, spoke on "Should the General Practice of Medicine Be Considered a Specialty?" The president of the state association, Dr. Giles S. Bryan, Amory, invited all ex-presidents of the state association to this meeting, and those who responded included Drs. Robert S. Curry, Jackson; Lucien C. Feemster, Tupelo; Peter W. Rowland, Oxford; Jacob S. Ullman, Natchez, and Felix J. Underwood, Jackson, the last acting as toastmaster to the banquet in the evening.

MISSOURI

Arrested for Selling "Paregoric."—Eight druggists in St. Louis were arrested, October 2, by federal narcotic agents for selling more than 2 ounces of paregoric to a patron. They were held under bonds of $1,000 each.

Student Health Service.—St. Louis University initiated this fall a student health service which will provide a clinic where each new student may apply for treatment for any ailment at any time, and provide medical service in the home of any student at any time. The service is a division of the department of internal medicine of the university under the supervision of the director of that department and under the direction of a physician directly responsible for the service.

Personal.—Dr. Wallace S. Petty, Memphis, has been appointed full-time health officer of Pemiscot County at Caruthersville.——Dr. Theodore W. Romeiser, formerly professor of neurology at St. Louis University School of Medicine, St. Louis, has been appointed to the staff of State Hospital No. 2.——Dr. Levi H. Fuson has been elected president of the staff at St. Joseph Hospital, St. Joseph.——Dr. George L. Sherman has accepted a position at the sanatorium in St. Joseph which is conducted by Dr. Charles R. Woodson.——Dr. James C. Chilton, Hannibal, has been appointed chief surgeon of the St. Louis and Hannibal Railroad.

Proposed County Health Department.—Dr. Joseph W. Mountin, Jefferson City, representing the state board of health, and others representing the county school boards, Red Cross and other organizations, appeared before the county court in St. Joseph, September 14, to advocate the establishment of a full-time county health unit in Buchanan County. Dr. Mountin said, it is reported, the unit would cost between $7,500 and $8,000, and that the state board of health would provide half that sum and that the Rockefeller Foundation and the U. S. Public Health Service would also assist. The unit as proposed would have a full-time health officer and two nurses, one maintained by the Red Cross. He said also that the county health department would carry on a program of public health education through the press, schools, moving pictures and conferences; instruction would be given in the rural districts to mothers, and health service would be established in the rural schools similar to that now in the city schools of St. Joseph, and that the sanitation of the dairies, schools and homes would be looked after.

NEW YORK

Society News.—Drs. Byron B. Bowen and Nelson G. Russell, both of Buffalo, addressed the Cattaraugus County Medical Society, Delevan, September 8, on "Present Day Problems of Diabetes" and "Treatment of Cardiac Disease," respectively.——Dr. Joseph H. Globus, adjunct neurologist to Mount Sinai Hospital, New York, addressed the Rockland County Medical Society, Letchworth Village, September 23, on "Diagnostic Features of Various Forms of Paralysis with Particular Reference to Brain Tumor and Encephalitis." The members were guests after the meeting of Dr. Charles S. Little, superintendent of Letchworth Village, at a supper which, the *New York State Journal of Medicine* says, is an annual event to which the physicians look forward with pleasure.——Dr. Henry L. Shaw, president of the Albany County Medical Society, Albany, addressed the Otsego County Medical Society at Oneonta, September 8, on "Infant Feeding"; he invited the members to an old-fashioned clam bake and dance at the Albany Country Club under the supervision of the Albany County Medical Society, September 16.

Joint Meeting on Graduate Medical Education.—A special committee on graduate medical education and the committee on public health and medical education held a joint meeting recently in Albany. There was a lengthy discussion of the principles involved in the graduate education plan of the state medical society. Formal resolutions were passed to the effect that: (1) the state committee shall work through the county and district societies and that no course shall be given except through one of them; (2) the courses in pediatrics and obstetrics that have proven successful shall be offered to the county societies as courses already avail-e; (3) the moving picture films on tuberculosis and gastric er shall be offered to the district branches for use in their ual meeting; (4) the chairman shall appoint a sub-nmittee to prepare short courses and find out from medical ools whether they would be willing to help; (5) the chair-n was authorized to arrange for such clinical lectures as Orange County Medical Society may request in con-uation of the course in operation. Dr. Charles A. Gordon, irman of the committee on public health and education, t a questionnaire to every county society to find out, among er things, what would be attractive to members in graduate ching, what the county societies are doing in graduate dical teaching, what facilities exist in the county to con-:t extension courses, and whether physicians of the county o are not members of the state society should be included.

New York City

peech Clinic Opens.—The New York University Speech nic, which operated last year, opened again, October 2, at Washington Square Building of the University. The ic is said to be the only one of its kind connected with a versity in this country.

irector of Publicity Assigned.—The board of estimate ated, October 2, the position of director of publicity and lic health education in the department of health. Dr. n Oberwager, formerly assistant to Health Commissioner naghan, has been assigned to the new position.

ore Units in Medical Center.—With the approval of the viving donors of the Sloane Hospital for Women and the nderbilt Clinic, Columbia University announced, October that these institutions will be moved to the new Medical nter at Broadway and One Hundred and Sixty-Fifth Street. e original agreements provided that should the medical ool be moved from Fifty-Ninth Street, the university uld rebuild the hospital and clinic on whatever new site s selected.

Columbia Offers Ph.D. in Public Health.—Two new posi-ns have been filled in the Institute of Public Health of lumbia University College of Physicians and Surgeons ich will permit the offering of courses leading to master science in public health and Ph.D. in public health, the ly degrees which will be offered by Columbia in this field. . Alton S. Pope has assumed the duties of assistant pro-sor in epidemiology at the institute and Dr. Frank G. dley that of assistant professor in industrial hygiene.

Personal.—Dr. Thomas D. Wood, chairman of the joint mmittee on health problems in education of the National lucation Association and the American Medical Associa-n, addressed the American Dental Association at its recent nual meeting in Louisville, Ky., on "The Cooperation of achers and Dentists in the Dental Hygiene of Children." —Dr. Anthony Bassler addressed the Academy of Medicine Columbus, Ohio, October 5, on "Medical Treatment of omach and Intestinal Conditions."——Dr. Charles P. L. athe, San Francisco, will address the genito-urinary sur-ry section of the New York Academy of Medicine, October , on "The Present Day Status of Urology in Europe."—— r. Joseph A. Blake took up his new duties, October 1, as ief of the Tarrytown Hospital.

New Activities of Academy of Medicine.—*The cornerstone* the new building of the New York Academy of Medicine ill be laid, October 30, at 4:30 o'clock. From 1843 until 24, the academy limited its activities to promoting the ience and art of medicine, to the maintenance of medical brary, and the promotion of public health. When it decided expand, the Carnegie Corporation appropriated $1,550,000 r a new academy building and the Rockefeller Foundation ,250,000 for endowment for new activities, including the pointment of a full-time director and a new executive brarian, the development of library service, the maintenance a bureau of clinical information and the publication of a ulletin. The director of the academy, who began his duties, n. 1, 1924, is a member of all committees, makes special udies of affairs suggested by the council and is general perintendent of the building. The library is the only ublic medical library in New York City. It is open daily to e public, and the staff will be increased in order to extend s activities.

Rare Communicable Diseases in New York.—In the annual port for 1924 of the Bureau of Preventable Diseases of ew York, the chief diagnostician, Dr. William L. Somerset, ives the incidence of some of the rarer communicable diseases. There were thirty-one cases of leprosy on record on Dec. 31, 1924, as against twenty-eight cases in the previous year; one patient was deported and four patients with leprosy came to the city during the year; ten patients were being treated at Riverside Hospital and the others at various clinics. There were fourteen cases of typhus fever during the year and one death, and there was no connection between these cases and recent immigrants. There were twelve cases of trichiniasis with one death; several patients became ill after an absence from the city, indicating a probability of infection elsewhere. There were twenty-eight cases of tetanus in the city, with twenty-three deaths, and three of these occurred in drug addicts. There was one case of anthrax, for which no source of contagion was discoverable; the patient recovered; there is a steadily decreasing incidence in anthrax in the city. There were only four cases of smallpox reported in Greater New York in 1924, and they were all mild. There were no cases of rabies or glanders. There were two cases of rat bite fever and both patients recovered.

NORTH CAROLINA

Revocation of License Sustained.—The superior court at Durham recently sustained the action of the state board of medical examiners in revoking the license to practice medicine of Dr. Edwin H. Bowling, Durham. Dr. Bowling was convicted in the federal court twice of violations of the Harrison Narcotic Law. The board held that these convictions were evidence of unprofessional conduct within the meaning of the statute.

Diphtheria in Isolated Village.—Responding to a call for assistance, navy medical officers went by airplane to the village of Hatteras, October 3, and found cases of diphtheria in twenty-two homes in a total population of about 600 persons. There were three cases in some homes and one child died on the above date. Hatteras is a community of fishermen and their families about 30 miles off the North Carolina coast. There is no resident physician.

OHIO

Physician Sentenced for Delaying Trial.—Dr. Louis L. Rosenberg, Toledo, was sentenced to ten days in jail and fined the costs, September 29, it is reported, on a charge of aiding in the removal of a court witness. Dr. Rosenberg, it is alleged, signed a certificate to the effect that J. C. Roberts, who was charged with liquor violation, was ill and unable to appear in court. A policeman, however, reported that Roberts was not ill and brought him into court.

Personal.—Dr. Otto P. Geier, Cincinnati, who recently returned from the International Conference on Industrial Medicine at Geneva, Switzerland, presented to Dr. Frank G. Boudreau, formerly chief of the division of communicable diseases in Ohio, a gold watch on behalf of his associates in the state department of health. Dr. Boudreau is now epidemiologist for the League of Nations.——Dr. Melville D. Ailes, Jackson Center, has been appointed health commissioner of Sidney and Shelby County to succeed Dr. Arlington Ailes, resigned.

Health Survey of Laundries.—In a general survey of health conditions in industry in Columbus, a report has been made on laundries by Dr. Nelson C. Dysart of the health department. The investigation covered fifteen laundries, which ranged in the number of employes from two to others which employed hundreds of people. The health of laundry workers generally was found to be very good, although in 1910, 1911 and 1912 the mortality rate among laundresses for pulmonary tuberculosis was reported to be 23.49; in the same period it was 7.14 for agricultural workers. All of the laundries except one used individual drinking cups and towels; the ventilation in some was only fair, but no special health hazards were found. The next investigation will be of bakeries.

A Mother at Fifty-Nine.—During 1924, in Ohio, 130,610 mothers gave birth to living children, says the state department of health. There were 1,414 pairs of twins and eleven sets of triplets; a child was born in the state every four minutes during the year; there were 67,892 males and 64,156 females. Among the triplets twelve were females and twenty-one males; there were five sets of still-born triplets, all males. The largest number of births was in August, the lowest number in November. Four of the mothers were only twelve years of age, seven were 14, eleven were 50 years, one was 51, four were 55 and one 59 years of age; 450 mothers gave birth to their twelfth child, 300 to the thirteenth, 123 to the fourteenth, 66 to the fifteenth, 25 to the sixteenth, 8 to the seventeenth, 5 to the eighteenth, two to the nineteenth and one to the twentieth child.

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Philadelphia

Sword Presented to University.—The sword of Dr. John Houston, surgeon of the Continental Army, and the diploma which he received from Glasgow University have been mounted on the stairway in Houston Hall at the University of Pennsylvania. Dr. Houston was a graduate of the university in 1769. The sword and diploma were presented to the university by Charles Warner Houston, Los Angeles, a great great grandson. The University of Pennsylvania furnished not only physicians but many other leaders in the army and in the Continental Congress.

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TENNESSEE

Hospital Survey Completed.—The mayor of Memphis called a meeting in the auditorium concert hall, October 16, to present to the public the report and recommendations of the hospital and health survey of Memphis made by Dr. Haven Emerson, New York. To secure a representative audience of persons interested in community welfare, invitations were sent to the members of all clubs and civic organizations. The underlying reason for the survey, the mayor said, was to coordinate the hospital building programs which both the city and county contemplate.

Society News.—At the fourth annual session of the Walnut Log Medical Society, Reelfoot Lake, September 29, Dr. Ira Park, Union City, was elected president; Dr. R. L. Motley, Dyersburg, secretary, reelected; Drs. Willis Moss, Clinton, Ky., and R. M. Little, Martin, vice presidents, and Dr. J. D. Brewer, Dyersburg, treasurer. A banquet followed the scientific session and plans were made for the purchase of a club house in the park.——The Southern Tuberculosis Conference will be held in Memphis, October 14-16, with Dr. Henry Boswell, Jr., of Sanatorium, Miss., presiding.

WASHINGTON

Golf Trophies.—Preceding the recent meeting of the state medical association at Seattle, Dr. George M. Horton, Seattle, donated a challenge cup to be played for annually. The winner this year was presented with a replica, and the winner of five annual tournaments will have permanent possession of the trophy. Dr. Joseph A. McKee gave a cup to the general practitioner of the state who won a 36-hole competition.

WISCONSIN

Vimedia Quack Ordered to Leave Town.—Mrs. Clara Mosher, an agent for the "Vimedia" line of nostrums, has been ordered by the Board of Health of Beaver Dam to leave the city. "Vimedia" is a combination of products similar to the "Viavi Treatment," both having been written up in "Nostrums and Quackery"; they are "female weakness cures." Mrs. Mosher ostensibly gives "health lectures" but actually sells the Vimedia products. She is said to have relieved Beaver Dam women of several thousand dollars in the sale of the "treatment." Other Wisconsin cities have been warned of her activities.

Society News.—Dr. Clarence W. Hopkins, Chicago, chief surgeon of the Chicago and Northwestern Railroad, addressed the Medical Society of Milwaukee County, October 9, on "Multiple Fractures of the Pelvis Complicated by Dislocation of the Head of the Femur," and Dr. John Powers on "Case of Central Fracture of the Acetabulum Complicated by Pregnancy"; both speakers gave lantern slide illustrations. ——Dr. Jake A. Riegel, St. Croix Falls, addressed the Barron - Polk - Washburn - Sawyer - Burnett County Medical Society at Barron, September 1, on "The Typing of Pneumonia" and, among others, Dr. William H. Hengstler, St. Paul, on "Mercurochrome in Acute Infections of the Nervous System."

New Health Program in Oshkosh Schools.—The board of education of Oshkosh unanimously adopted the recommendations of the health and recreation committee for a new health program for the schools. Local physicians will be employed to examine school children and serve as advisors at the various schools. The examinations will be made to discover organic defects so that parents may have their children treated by their family physician. A card showing the results of examinations will accompany the pupil throughout his school life. The work will be correlated under the city health department. Drs. John M. Conley, Jasper W. Lockhart, John F. Schneider, William P. Wheeler, Harry H. Meusel, John F. Stein, George A. Steele, Henry W. Kleinschmidt, William A. Wagner, Hubert J. Haubrick and Edward J. Campbell were appointed to make the examinations.

Speech Clinic.—The department of speech of the University of Wisconsin maintains throughout the academic year a clinic for the diagnosis and treatment of defects of speech. The clinic is largely diagnostic for cases outside of the student body but gives advice as to the method of treatment and where it can be obtained. A limited number of widely divergent type cases will be admitted to a six weeks' course of training in a demonstration clinic which will be conducted at the 1926 summer session; applications for this clinic should be accompanied by the history and a description of the defect. Admission to both clinics is free with the understanding that advance students in the science of speech correction will be permitted to see the cases and learn their histories. Appointments must be arranged in advance with Robert West, A.M., assistant professor of speech, Bascom Hall, University of Wisconsin, Madison.

CANADA

Hospital News.—Some old buildings in Vancouver in the block bounded by Twelfth and Thirteen Avenues and Heather and Willow Streets are being demolished in order to erect the new infectious disease wing of the General Hospital. The University of British Columbia has vacated the buildings between Tenth and Twelfth Avenues which now revert to the General Hospital.

Society News.—The October *Bulletin* of the Vancouver Medical Association, Vancouver, B. C., notes the speakers for the general meetings of the society from October 6 until the annual meeting, April 20; each alternate session will be a clinical meeting. Dr. James A. Gillespie gave his presidential address, October 6, on "The Progress and Future of Medicine"; Dr. Hibbert W. Hill will discuss "The Part Played by the Laboratory in Clinical Medicine" November 3, and Drs. Wallace A. Wilson and George Lyall Hodgins "Intravenous Therapy" December 1.

GENERAL

Investigation of Otosclerosis.—At the last meeting of the board of the Carnegie Corporation of New York, $90,000 was appropriated to the American Otological Society for an investigation of otosclerosis during the next five years.

Lectures on Birth Control.—The American Birth Control League, New York, is sending Dr. James F. Cooper, director of its clinical research department, on another lecture tour beginning October 7, at Newark, N. J., and comprising lectures almost daily until December 14 in Pennsylvania, Indiana, Illinois, Missouri, Arkansas, Texas, Louisiana, Mississippi, Alabama, Georgia, Tennessee, North and South Carolina, Virginia, West Virginia, Maryland and the District of Columbia. Dr. Cooper recently completed a tour of lectures on birth control in the Western states.

Warning: Oil Stock Operator.—A physician from Michigan writes that one E. R. Williams, who claims to represent the J. H. Fookes Company of St. Louis, has been selling Standard Oil stock in his community and that he bought some "stock." Failing to receive his certificates, he wrote to the Standard Oil Company in New York and St. Louis and to the Michigan Securities Commission and learned that there is no J. H. Fookes Company and that Williams is not authorized to sell stock in the state of Michigan. Williams has dark hair, prominent nose, large mouth, some gold filled teeth; wears glasses and is of medium height. He called on our correspondent two years ago to sell oil stock, but failed then to make "a sale."

National Board of Medical Examiners.—Connecticut now permits its examining board to grant licenses to physicians who hold the certificate of the National Board of Medical Examiners without further examination, making thirty-three states, Porto Rico and the Canal Zone which accept this certificate; 2,212 candidates have been examined since the national board's first examination, and 78 per cent. of them have passed; the number of candidates for the certificates has increased from ten, who took the first examination in Washington, D. C., October, 1916, to 978, who were examined during 1924. There will be an examination in Part III in Baltimore, October 13-16; Boston, October 26-29; Chicago, in December, and New York, in January. Candidates for these examinations should notify the board at 1600 Walnut Street, Philadelphia, at once.

Golden Rule Sunday.—The Near East Relief announces that the third annual observance of Golden Rule Sunday will be December 6. The public is requested to eat a humble meal such as homeless children under the care of Americans in the Near East eat every day in the year, and then to make a contribution to help these children. Dr. Wendell C. Phillips, New York, President-Elect of the American Medical Association, has accepted the chairmanship of the Golden Rule Sunday Cooperating Committee, which aims to promote international good will and to focus attention on the needs of the war orphans of the Near East. The appeal for funds last year was to aid 50,000 orphans; there are today about 35,000 in need, the others have either been adopted by families or placed at work in industries. Of the 35,000 who still need aid, 80 per cent. of them are less than 14 years of age. Orphanage centers under the control of Near East Relief are located in Syria, Palestine, Greece and Russian Armenia. In all of these orphanages industrial training is part of the program; nurses' training schools in Athens and Alexandropol have been organized where the older orphan girls are given training. Near East Relief has initiated medical work among these orphans and refugees; in Macedonia malaria has been reduced as a result of its campaign; the absence of typhus this year is attributed largely to precautions taken by Near East Relief workers cooperating with government agencies.

Society News.—The second annual meeting of the Eastern Society of Anesthetists will be at Philadelphia, October 26-30, at the Hotel Adelphia. There will be clinics in the mornings and discussions open to members of the profession in the afternoons, also joint sessions with the Mid-Western Association of Anesthetists, the Philadelphia Academy of Stomatology and the American Society of Regional Anesthesia. The dinner-dance will be October 28. Dr. Adolph F. Erdmann will deliver the president's address, 2:30, October 26. ——At the thirty-eighth annual convention of the Medical Society of the Missouri Valley, St. Joseph, October 1, Dr. A. D. Dunn, professor of experimental medicine, Nebraska University College of Medicine, Omaha, was elected president; Drs. H. W. Carle, St. Joseph, Mo., M. A. Tinley, Council Bluffs, Iowa, vice presidents; Dr. Charles W. Fassett, Kansas City, Mo., secretary, and Dr. O. C. Gebhart, St. Joseph, Mo., treasurer. The next annual meeting will be at Council Bluffs.——The foreign guests at the fifteenth annual meeting of the clinical congress of the American College of Surgeons, Philadelphia, October 26-30, will be Lord Dawson of Penn, London, physician in ordinary to the king; Sir William Arbuthnot Lane, London, who will deliver the John B. Murphy Oration in Surgery; Prof. Vittorio Putti, Bologna, Italy, who will speak on some phase of orthopedic surgery; Dr. Victor Pauchet, Paris, professor of clinical surgery in the School of Medicine at Amiens, who will read a paper on "Experiences in the Surgical Treatment of Gastric, Duodenal and Jejunal Ulcers"; Dr. William Blair-Bell, professor of obstetrics and gynecology, University of Liverpool, England, and Dr. Philip J. Franklin, London, eye, ear, birth to their twelfth child, 300 to the thirteenth, 123 to the fourteenth, 66 to the fifteenth, 25 to the sixteenth, 8 to the seventeenth, 5 to the eighteenth, two to the nineteenth and one to the twentieth child.

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Annual Clinic at Mitchell.—The fifth annual clinic for physicians of Mitchell will be November 5-6. There will be no operative work, dry clinics having been found, the chairman said, more popular and more instructive than the usual operations. Dr. Edward S. Judd, professor of surgery, Mayo Foundation, Rochester, Minn., will conduct a clinic on "Abdominal Surgery and Diagnosis"; Dr. Fred M. Smith, professor of medicine, State University of Iowa College of Medicine, Iowa City, on "Diseases of the Heart"; Dr. Arthur A. Sweeney, St. Paul, "Neurology and Psychiatry"; Dr. Hiram W. Orr, Lincoln, Neb., "Orthopedics"; Dr. Willis S. Lemon, Mayo Foundation, Rochester, Minn., "Diseases of the Chest"; Dr. Henry E. Michelson, University of Minnesota Medical School, Minneapolis, "Diseases of the Skin"; Dr. Rood Taylor, University of Minnesota Medical School, "Diseases of Children," and Dr. Harold I. Lillie, Mayo Foundation, Rochester, Minn., "Diseases of the Eye, Ear, Nose and Throat."

TENNESSEE

Hospital Survey Completed. — The mayor of Memphis called a meeting in the auditorium concert hall, October 16, to present to the public the report and recommendations of the hospital and health survey of Memphis made by Dr. Haven Emerson, New York. To secure a representative audience of persons interested in community welfare, invitations were sent to the members of all clubs and civic organizations. The underlying reason for the survey, the mayor said, was to coordinate the hospital building programs which both the city and county contemplate.

Society News.—At the fourth annual session of the Walnut Log Medical Society, Reelfoot Lake, September 29, Dr. Ira Park, Union City, was elected president; Dr. R. L. Motley, Dyersburg, secretary, reelected; Drs. Willis Moss, Clinton, Ky., and R. M. Little, Martin, vice presidents, and Dr. J. D. Brewer, Dyersburg, treasurer. A banquet followed the scientific session and plans were made for the purchase of a club house in the park.——The Southern Tuberculosis Conference will be held in Memphis, October 14-16, with Dr. Henry Boswell, Jr., of Sanatorium, Miss., presiding.

WASHINGTON

Golf Trophies.—Preceding the recent meeting of the state medical association at Seattle, Dr. George M. Horton, Seattle, donated a challenge cup to be played for annually. The winner this year was presented with a replica, and the winner of five annual tournaments will have permanent possession of the trophy. Dr. Joseph A. McKee gave a cup to the general practitioner of the state who won a 36-hole competition.

WISCONSIN

Vimedia Quack Ordered to Leave Town.—Mrs. Clara Mosher, an agent for the "Vimedia" line of nostrums, has been ordered by the Board of Health of Beaver Dam to leave the city. "Vimedia" is a combination of products similar to the "Viavi Treatment," both having been written up in "Nostrums and Quackery"; they are "female weakness cures." Mrs. Mosher ostensibly gives "health lectures" but actually sells the Vimedia products. She is said to have relieved Beaver Dam women of several thousand dollars in the sale of the "treatment." Other Wisconsin cities have been warned of her activities.

Society News.—Dr. Clarence W. Hopkins, Chicago, chief surgeon of the Chicago and Northwestern Railroad, addressed the Medical Society of Milwaukee County, October 9, on "Multiple Fractures of the Pelvis Complicated by Dislocation of the Head of the Femur," and Dr. John Powers on "Case of Central Fracture of the Acetabulum Complicated by Pregnancy"; both speakers gave lantern slide illustrations. ——Dr. Jake A. Riegel, St. Croix Falls, addressed the Barron - Polk - Washburn - Sawyer - Burnett County Medical Society at Barron, September 1, on "The Typing of Pneumonia" and, among others, Dr. William H. Hengstler, St. Paul, on "Mercurochrome in Acute Infections of the Nervous System."

New Health Program in Oshkosh Schools.—The board of education of Oshkosh unanimously adopted the recommendations of the health and recreation committee for a new health program for the schools. Local physicians will be employed to examine school children and serve as advisors at the various schools. The examinations will be made to discover organic defects so that parents may have their children treated by their family physician. A card showing the results of examinations will accompany the pupil throughout his school life. The work will be correlated under the city health department. Drs. John M. Conley, Jasper W. Lockhart, John F. Schneider, William P. Wheeler, Harry H. Meusel, John F. Stein, George A. Steele, Henry W. Kleinschmidt, William A. Wagner, Hubert J. Haubrick and Edward J. Campbell were appointed to make the examinations.

Speech Clinic.—The department of speech of the University of Wisconsin maintains throughout the academic year a clinic for the diagnosis and treatment of defects of speech. The clinic is largely diagnostic for cases outside of the student body but gives advice as to the method of treatment and where it can be obtained. A limited number of widely divergent type cases will be admitted to a six weeks' course of training in a demonstration clinic which will be conducted at the 1926 summer session; applications for this clinic should be accompanied by the history and a description of the defect. Admission to both clinics is free with the understanding that advance students in the science of speech correction will be permitted to see the cases and learn their histories. Appointments must be arranged in advance with Robert West, A.M., assistant professor of speech, Bascom Hall, University of Wisconsin, Madison.

CANADA

Hospital News.—Some old buildings in Vancouver in the block bounded by Twelfth and Thirteen Avenues and Heather and Willow Streets are being demolished in order to erect the new infectious disease wing of the General Hospital. The University of British Columbia has vacated the buildings between Tenth and Twelfth Avenues which now revert to the General Hospital.

Society News.—The October *Bulletin* of the Vancouver Medical Association, Vancouver, B. C., notes the speakers for the general meetings of the society from October 6 until the annual meeting, April 20; each alternate session will be a clinical meeting. Dr. James A. Gillespie gave his presidential address, October 6, on "The Progress and Future of Medicine"; Dr. Hibbert W. Hill will discuss "The Part Played by the Laboratory in Clinical Medicine" November 3, and Drs. Wallace A. Wilson and George Lyall Hodgins "Intravenous Therapy" December 1.

GENERAL

Investigation of Otosclerosis.—At the last meeting of the board of the Carnegie Corporation of New York, $90,000 was appropriated to the American Otological Society for an investigation of otosclerosis during the next five years.

Lectures on Birth Control.—The American Birth Control League, New York, is sending Dr. James F. Cooper, director of its clinical research department, on another lecture tour beginning October 7, at Newark, N. J., and comprising lectures almost daily until December 14 in Pennsylvania, Indiana, Illinois, Missouri, Arkansas, Texas, Louisiana, Mississippi, Alabama, Georgia, Tennessee, North and South Carolina, Virginia, West Virginia, Maryland and the District of Columbia. Dr. Cooper recently completed a tour of lectures on birth control in the Western states.

Warning: Oil Stock Operator.—A physician from Michigan writes that one E. R. Williams, who claims to represent the J. H. Fookes Company of St. Louis, has been selling Standard Oil stock in his community and that he bought some "stock." Failing to receive his certificates, he wrote to the Standard Oil Company in New York and St. Louis and to the Michigan Securities Commission and learned that there is no J. H. Fookes Company and that Williams is not authorized to sell stock in the state of Michigan. Williams has dark hair, prominent nose, large mouth, some gold filled teeth; wears glasses and is of medium height. He called on our correspondent two years ago to sell oil stock, but failed then to make "a sale."

National Board of Medical Examiners.—Connecticut now permits its examining board to grant licenses to physicians who hold the certificate of the National Board of Medical Examiners without further examination, making thirty-three states, Porto Rico and the Canal Zone which accept this certificate; 2,212 candidates have been examined since the national board's first examination, and 78 per cent. of them have passed; the number of candidates for the certificates has increased from ten, who took the first examination in Washington, D. C., October, 1916, to 978, who were examined during 1924. There will be an examination in Part III in Baltimore, October 13-16; Boston, October 26-29; Chicago, in December, and New York, in January. Candidates for these examinations should notify the board at 1600 Walnut Street, Philadelphia, at once.

Golden Rule Sunday.—The Near East Relief announces that the third annual observance of Golden Rule Sunday will be December 6. The public is requested to eat a humble meal such as homeless children under the care of Americans in the Near East eat every day in the year, and then to make a contribution to help these children. Dr. Wendell C. Phillips, New York, President-Elect of the American Medical Association, has accepted the chairmanship of the Golden Rule Sunday Cooperating Committee, which aims to promote international good will and to focus attention on the needs of the war orphans of the Near East. The appeal for funds last year was to aid 50,000 orphans; there are today about 35,000 in need, the others have either been adopted by families or placed at work in industries. Of the 35,000 who still need aid, 80 per cent. of them are less than 14 years of age. Orphanage centers under the control of Near East Relief are located in Syria, Palestine, Greece and Russian Armenia. In all of these orphanages industrial training is part of the program: nurses' training schools in Athens and Alexandropol have been organized where the older orphan girls are given training. Near East Relief has initiated medical work among these orphans and refugees; in Macedonia malaria has been reduced as a result of its campaign; the absence of typhus this year is attributed largely to precautions taken by Near East Relief workers cooperating with government agencies.

Society News.—The second annual meeting of the Eastern Society of Anesthetists will be at Philadelphia, October 26-30, at the Hotel Adelphia. There will be clinics in the mornings and discussions open to members of the profession in the afternoons, also joint sessions with the Mid-Western Association of Anesthetists, the Philadelphia Academy of Stomatology and the American Society of Regional Anesthesia. The dinner-dance will be October 28. Dr. Adolph F. Erdmann will deliver the president's address, 2:30, October 26. ——At the thirty-eighth annual convention of the Medical Society of the Missouri Valley, St. Joseph, October 1, Dr. A. D. Dunn, professor of experimental medicine, Nebraska University College of Medicine, Omaha, was elected president; Drs. H. W. Carle, St. Joseph, Mo., M. A. Tinley, Council Bluffs, Iowa, vice presidents; Dr. Charles W. Fassett, Kansas City, Mo., secretary, and Dr. O. C. Gebhart, St. Joseph, Mo., treasurer. The next annual meeting will be at Council Bluffs.——The foreign guests at the fifteenth annual meeting of the clinical congress of the American College of Surgeons, Philadelphia, October 26-30, will be Lord Dawson of Penn, London, physician in ordinary to the king; Sir William Arbuthnot Lane, London, who will deliver the John B. Murphy Oration in Surgery; Prof. Vittorio Putti, Bologna, Italy, who will speak on some phase of orthopedic surgery; Dr. Victor Pauchet, Paris, professor of clinical surgery in the School of Medicine at Amiens, who will read a paper on "Experiences in the Surgical Treatment of Gastric, Duodenal and Jejunal Ulcers"; Dr. William Blair-Bell, professor of obstetrics and gynecology, University of Liverpool, England, and Dr. Philip J. Franklin, London, eye, ear, nose and throat surgeon to the East London Hospital. Headquarters will be at the Bellevue-Stratford Hotel. At the meeting, Monday evening, the president of the congress, Dr. Charles H. Mayo, Rochester, Minn., will induct into office his successor, Dr. Rudolph Matas, New Orleans.——At the recent annual meeting of the American Dental Association, Louisville, Ky., Dr. Sheppard W. Foster, Atlanta, was installed as president; Dr. John F. Biddle, Pittsburgh, was made president-elect; Drs. E. C. Hume, Louisville, Ky., George W. Hillias, Kansas City, Mo., and George W. Dick, Sumter, S. C., vice presidents; Dr. Otto U. King, Chicago, general secretary, reelected, and Dr. Arthur R. Melendy, Knoxville, Tenn., treasurer, reelected. The 1926 meeting will be at Philadelphia during the International Dental Congress.

FOREIGN

Richer Radium Ores.—The *Bruxelles-médical* states that the factory near Oolen producing radium from the Congo ore has turned out a total of 150 gm. of radium, 4 gm. a month on an average. Our exchange adds that there are only 310 gm. of radium known in the world to date. Certain minerals of the Congo, it is said, contain 60 per cent. of the radium-bearing uranium ore, while the United States mines had only 2 per cent.

Prize Essay on Maternal Mortality.—The permanent committee for postgraduate work of Melbourne, Australia, has awarded the prize for the best essay on maternal morbidity and mortality to Dr. E. S. Morris, of the department of public health, New South Wales, whose subject was "Salus Populi Suprema Lex." Sixteen essays were submitted. The winner will be published in the *Medical Journal of Australia.* The prize of 150 guineas was donated anonymously.

Proposed International Malaria Institute.—At the International Antimalarial Congress, Rome, October 5, the establishment of an international institute in that city for the study of malaria was endorsed by the Italian government, which promised support. The proposal was referred to the council of the congress for recommendation to the governments represented. The institute (it was proposed by the Argentine delegation) would gather information on malaria, conduct research and establish courses for physicians who desire to make a special study of malaria. The American delegation to the congress included, among others, Dr. L. W. Hackett, of the Rockefeller Foundation; Dr. Walter W. King, U. S. Public Health Service, stationed at Paris; Drs. William G. MacCallum and William S. Thayer, both of Johns Hopkins University Medical Department, Baltimore, and Dr. Richard P. Strong of Harvard University Medical School, Boston.

International Congress on Occupational Diseases and Hygiene.—The thirteen addresses at the general assembly at this meeting at Amsterdam in September have been published in a pamphlet by the *Nederlandsch Tijdschrift voor Geneeskunde.* Two addresses are in English, "Compensation to Workmen in Great Britain," by J. Glaister, and "Some Achievements of Industrial Legislation and Hygiene," by Sir Thomas Oliver; in German, F. Sauerbruch's "Tumor and Trauma," L. Teleky's "Conception and Diagnosis of Occupational Affections," R. Allers' "Fatigue," A. Wittek's "Hand Injuries," J. Akerman's "Fracture of Neck of the Femur and Compensation for This Disability," and F. Zollinger's "Tuberculosis and Trauma." The French speakers were O. Crouzon, "Occupational Nervous Maladies," B. Cuneo, "Accidents and Maladies," and A. Oller, "Functional Readaptation of the Disabled." L. Devoto, chief of the clinic at Milan exclusively devoted to occupational affections, spoke on "Pathology of the Cardiovascular Apparatus of Occupational Origin." L. Heijermans spoke in French on "Obtaining Employment for the Manually Handicapped." The address of the *Nederlandsch Tijdschrift* is Nicolaas Maesstraat 89, Amsterdam, Netherlands.

Deaths in Other Countries

Dr. **Roy Charles Merryweather,** Perth, Australia, formerly president of the Western Australian Branch of the British Medical Association and senior honorary physician at the Perth Public Hospital, July 14, of angina pectoris.——Dr. **Marie Parhon,** Jassy, noted for research in biology.——Dr. **R. Medina Jiménez,** Caracas, secretary of the Academia Nacional de Medicine, recently returned from an official mission to study malaria abroad.——Three physicians lost their lives in a recent automobile accident at the Furca, in Switzerland, Dr. **F. Grob,** Dr. **Plattner** and Dr. **Lichtenhahn-Brenner,** all of Chur or Basel.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 26, 1925.

Sir Francis Darwin

The passing of Sir Francis Darwin, botanist and biographer of his father, has a special interest for the medical profession. The third son of Charles Darwin, he was born in 1848 and was educated at Trinity College, Cambridge. After obtaining a first class in the natural sciences tripos in 1870, he completed a medical course at St. George's Hospital, London, and proceeded to the degree of M.B., but he never practiced. Like several other botanists of his generation, he studied under Sachs at the University of Wurzburg. On leaving the hospital he returned home and for eight years was his father's secretary and assistant. In 1882 he was elected a fellow of the Royal Society. From 1884 to 1888 he was university lecturer in botany at Cambridge. From 1892 to 1895 he was deputy to Professor Babington. He gave most of his time to teaching and research in plant physiology, and largely through his efforts the practical training of students in this subject was more thorough at Cambridge than at other British universities. In 1904 he collaborated with the late E. H. Acton in publishing a "Practical Physiology of Plants," a book which exercised a wide influence. His researches in plant physiology followed two main lines: 1. Researches on movement, with especial reference to the localization of irritability, which his father discovered in the root tip, and generally to the views propounded in "The Movements of Plants." The outcome was to provide considerable experimental evidence in support of Charles Darwin's views and to support the idea of the localization of sense organs, which is now generally accepted. 2. Researches on the opening and closing of stomata with reference to the physiology of transpiration. He was an ingenious and able experimenter and, like his father, preferred simple apparatus and his own contrivances. At the time of the Darwin celebrations he published "Foundations of the Origin of Species," one of many proofs of his veneration for his father's work. His "Life and Letters of Charles Darwin" is in the first rank of biographies. His chief object was to portray his father's character and he succeeded remarkably in giving a picture of the man and the student, his methods and the gradual development of his opinions. His father's love of animals, his courtesy to those who served him, his consideration for others, his modesty and his high standard of honor in his treatment of other authors, are some of the many traits inherited to a marked degree by the son.

The Boric Acid Controversy

The controversy, previously mentioned, as to whether boric acid in the quantities used for preserving food is injurious, continues. A genito-urinary surgeon wrote to the *Times* against the coming prohibition because he found boric acid in daily doses of 20 grains (1.3 gm.) well tolerated by most of his patients. He admitted, however, that in some cases there was idiosyncrasy to the drug which might cause loss of appetite, vomiting and eruptions. Mr. A. G. Foulerton, an authority on pathology and hygiene, in replying to him points out that he might have added albuminuria and even death among the possible effects of boric acid administered in medicinal doses to persons with the idiosyncrasy. Mr. Foulerton adds that boric acid is an antiseptic and not a disinfectant or germicidal drug. It merely inhibits temporarily the multiplication of bacteria; it does not destroy them. In sufficient concentration it checks and masks putrefaction. A sausage made from unsound meat, if perserved with boric acid, will remain inoffensive to the nose before the actual stage of putrefaction. But when the food is taken into the stomach the boric acid becomes diluted, the antiseptic action of the drug is lost, and the dormant bacilli will resume their activity. Mr. Foulerton also suggests that it is probable that the small doses of boric acid now taken with food are one of the causes of the prevalence of kidney disease. Kister has shown that the administration of boric acid in pharmacopeial doses (from 40 to 50 grains [2.6 to 3.25 gm.] daily) to strong, healthy men is followed after from four to ten days by albuminuria—a sign of irritative action on the kidneys. A drug which in somewhat large doses will do this, in smaller doses day by day and year by year would predispose to or cause renal disease. In the British pharmacopeia for 1885 the dose of boric acid was given as from 5 to 30 grains (0.3 to 2 gm.). Numerous cases of poisoning were recorded, and in the next edition (1898) the maximum dose was reduced to 15 grains (1 gm.). Take the case of a baby of 12 months brought up on cow's milk. The minimum amount of boric acid required to preserve milk is about 1 part in 1,000, or about 7 grains (0.5 gm.) to the pint (236 c.c.). The baby will require 2 pints (475 c.c.) of milk daily, which if boricized will mean a dose of 14 grains (1 gm.) of the acid. The medicinal daily dose, calculated from the adult dose, would be from 1¼ to 3¾ grains (0.08 to 0.24 gm.). As a matter of fact, it has been found that boricized milk may cause serious bowel disorder in infants. At present, adults may take boric acid in a large variety of foods. Sausages may contain 45 grains (3 gm.) to the pound (450 gm.); American bacon, anything up to 100 grains (6.5 gm.) to the pound. The drugging of food with substances such as boric or salicylic acid is quite unnecessary. In France, Germany, Holland, Italy, Spain and the United States, boric acid is prohibited as a food preservative. The attitude of the United States is instructive. Under the federal Food and Drugs Act of 1912, the interstate transport of boricized food is prohibited; and many states have prohibited its use within their borders. But federal law allows the exploitation of the British market: "Food products intended for export may contain added substances not permitted in food for interstate commerce, when the addition of such substances does not conflict with the laws of the country to which the food products are to be exported."

The Therapeutic Substances Act

An act has just been passed to provide for the control of the quality and authenticity of such therapeutic substances as cannot be tested adequately by direct chemical means. These consist of three groups. The first consists of biologic products (vaccines, serums, toxins, antitoxins and antigens); the second, of synthetic substances (arsphenamin and its analogues); and the third, of insulin and preparations of the pituitary gland; the manufacture of the scheduled substances is to be conducted only by persons and on premises specially licensed for the purpose, and under such conditions as may be laid down by the licensing authority. A committee has been appointed which is empowered to make regulations prescribing the standard of strength, quality and purity of any substance to which the act applies, the tests to be used, the units of standardization, the form of license and the conditions of issue. All imports must be consigned to a person licensed for the purpose and must comply with the standards in force for the home products.

Metal Artificial Limbs

A committee of inquiry appointed by the ministry of pensions shows that the all metal artificial leg is the most popular with pensioners, as it also in many cases is the most suitable from the surgical point of view. All the legs issued, with the exception of very few of the Anglesey pattern, fall into two types—the Desoutter and the Hanger-Blatchford. The prices vary from $230 for a leg for hip-joint amputation to $100 for amputation below the knee. The experts agreed that the two firms making these limbs were producing articles of outstanding design and workmanship, with a standard of fitting which gave satisfaction to both surgeon and pensioner. The committee therefore recommended that the makers employed by the ministry should be reduced to these two firms. By doing this, partial standardization will be achieved, as, while the Desoutter limb is in a category by itself, the Hanger limb is fairly representative of the other limbs now in use. There are a few exceptional cases which require special artificial limbs. The report recommends that these should continue to be provided by the ministry, on the certificate of a board of surgeons that none of the approved limbs are suitable.

The "E. R. A." Cult in New Zealand

The practice by physicians of unscientific cults, such as Abrams' method, does not receive the same indulgence in New Zealand as in England. A physician had his name removed from the medical register of New Zealand at the instance of the medical board, because he practiced the Abrams method in the diagnosis and treatment of cancer in such a manner as to show that he could not have honestly believed it was useful. The case was then taken to the court of appeal. In delivering judgment, Mr. Justice Sim said that the medical practitioners' amendment act of 1924 provided that no medical practitioner shall be deemed guilty of grave impropriety or infamous conduct in a professional respect by reason only of his having adopted and practiced any theory of medicine or surgery if in so doing he has acted honestly and in good faith. But he confirmed the judgment of the lower court. The question of the value of the Abrams system was not directly at issue in the case, he said, the only question being whether the defendant had acted honestly and in good faith. The evidence showed that although he might have believed to some extent in the Abrams system, he used it not for the purpose of benefiting the unfortunate sufferers who came to him for relief, but for the purpose of exploiting them to his own pecuniary advantage. The order fixed two years as the time after which the physician could apply for reregistration. Mr. Justice Sim thought it unfortunate that any period was fixed, for it seemed undesirable that such a practitioner by obtaining reregistration should be enabled to prey on the public.

Dozing at the Wheel

In connection with the sad death from a motor accident of a young Newcastle surgeon of much promise, the *British Medical Journal* calls attention to a possible cause of mysterious motor accidents. Mr. Hamilton Drummond was driving a car, which swerved suddenly to the left, ran into a gate, and overturned. At the inquest it was reported that he said: "I dozed over, pulled in, could not recover. Have you ever had that experience? I have done that before, but once too often." The *British Medical Journal* points out that such an accident may easily occur with a tired driver, soothed to somnolence by the rhythm of the engine and the monotonous grind of the gear. A physician on one occasion, while his new car was being driven by an employee of the manufacturers, suddenly noticed that the driver was slipping down between the steering pillar and the seat. The man was asleep. He explained the occurrence by saying that he had been driving for three days and nights. Physicians must be more liable than most people to the risk of falling asleep at the wheel, since they often have long days of tiring work. Since Mr. Drummond's death, other physicians have related their terrifying experiences of dozing while driving. More than one said that when he found the inclination to sleep overpowering he pulled to the side of the road and took a short nap.

Drastic Powers for Dealing with Tuberculous Patients

New and drastic powers for dealing with tuberculous patients have just come into force. Tuberculosis is now put in the same category as the acute infectious disease, such as scarlet fever and typhoid. The patients may be removed from their homes and taken to a special hospital and there detained. If the patient refuses to go, the local authorities may apply to a court for an order for his removal.

A Medical Insurance Scheme for the Middle Classes

While our politicians produce one scheme after another for spending the money of the overburdened taxpayer on what they are pleased to call "social reform" for the supposed benefit of those to whom, by a strange perversion of language, the term "working classes" is confined, nothing is done for the middle classes, who are morally and intellectually the superior people of the country, on whom progress in civilization has always depended. A large part of these unhappy people are now so crushed between high taxation on the one side and high prices on the other that they cannot afford to be ill, much less pay the heavy costs of an operation. Some time ago Lord Dawson of Penn, physician to the London Hospital, made the suggestion that the lamentable plight of the middle classes might be remedied by a system of insurance. But insurance experts shook their heads and declared that the cost would be too heavy for the persons requiring insurance. Incidentally, it may be remarked that they have to pay the greater part of the expense of insuring the "working classes." However, after much preliminary labor a scheme has been launched in Manchester by a company called the Family Medical Services, Ltd. The scheme is divided into two parts: first, general practitioners' fees for the whole of a family per annum; second, the cost of operations. The person who insures his family must bear a portion of the fees paid for medical attendance himself. What he receives from the underwriters will be the excess over that minimum. This seems a very wise provision, for under the national insurance system much time is wasted in dealing with persons with imaginary or trivial ailments, who would never trouble a physician if they had to pay. The ordinary rates apply to men up to 45, women up to 40 and children over 12. Children under 2 years are not accepted, and between 2 and 12 years extra premiums are charged. Also for men between 45 and 50 and women between 40 and 50 there is an extra charge of 25 per cent. No insurance is accepted on any age over 50 at entry. The whole of a family must be insured, and reductions are allowed when the number insured exceeds three. The premiums vary with the class of physician employed (i. e., with the fees). For visits not exceeding $2 the annual amount borne by the insured is $12.50, plus $3.75 for every person insured over two. A medical examination is not required on entry, but the proposal form contains detailed and exhaustive questions in order to protect the underwriters against adverse selection. The second scheme, which provides for surgical operations, is more urgent, because many middle class persons can provide for ordinary medical attendance who could not stand the heavy cost of a major operation, with the nursing and other expenses. In all cases one fifth of the cost must be borne by the insured. There are four scales according to the fees provided for. The highest scale provides $250 for a minor operation, $500 for a major operation, and $500 for nursing and other charges, with a limit of $1,000 per annum for each person. The additional premium for this is $10. Whether the scheme will prove successful remains to be seen.

BUENOS AIRES

(From Our Regular Correspondent)

Sept. 12, 1925.

Medical School Officers

Appointments have been made to the directing board of the Buenos Aires Medical School, as follows: Drs. Castex, Tamini, Speroni, Acuña and Elizalde, by the professors; Drs. Ivanissevich and Usolenghi, by the students. Drs. U. Fernández and J. Iribarne have been appointed delegates of the medical school to the superior university board.

The Alleged Serum Therapy of Syphilis

Some time ago, Drs. Lancelotti and Jáureguy announced before the National Academy of Medicine that they had inoculated human syphilis in the llama, these animals showing in a few years visceral and nervous lesions. They also described their having secured serial cultures of *Spirochaeta pallida*, which, after inoculation in the llama, yielded a serum curative of syphilis in this animal, and also offering some promise in man. They went next to Europe and presented their work to the Paris Academy of Medicine, the Pasteur Institute, Genoa, and elsewhere. All the local newspapers published repeated laudatory comments.

The alleged scientists returned to this country, for which, they claimed, their first reports were reserved. Months went by but no report was forthcoming, but advertisements of their willingness to treat patients appeared in the newspapers. After several months' watchful waiting, the Society of Biology invited both physicians to submit their evidence. The reply intimated that this would soon be presented. The Society of Dermatology repeated the invitation, but the only answer was a newspaper tirade challenging the competence of dermatologists to pass on the merits of the work. In the meantime, a number of misstatements have been found in the assertions made by both men: 1. The Paris Academy of Medicine did not endorse their work but only stated it would prove interesting to see it verified. 2. Professor Muhlens did not see and verify their cultures. 3. It is not a fact that the efficiency of the serum should have been verified in the Rawson Hospital (Dr. Seminario's service).

It may be added that Dr. Morales Villazón has stated that he had previously made attempts at immunizing the llama, but unsuccessfully.

Histologic Course

None of the foreign professors who have visited this country have made such a deep impression as Dr. P. del Rio Hortega, the histologist sent by the Post-Graduate Board of Madrid. Instead of confining himself to lectures, del Río Hortega gave actual laboratory demonstrations in normal and pathologic histology during his three months' stay. This has aroused the interest of both professors and physicians, who are now carrying out studies and experiments in accordance with the Spanish investigator's views and technic. The Academy of Medicine has appointed del Río Hortega a corresponding member.

Foreign Professors

Prof. G. Fichera of Pavia has given a series of interesting lectures on cancer.——The lectures on gastro-intestinal surgery and pathology by Prof. P. Duval, the Paris surgeon, also proved very successful.——Prof. L. Bernard, on behalf of the League of Nations, also made a brief tour here, devoting special attention to antituberculosis work.

Revision of the Curriculum

The Buenos Aires Medical Faculty will presently begin to discuss changes in the curriculum. It seems, however, that no radical reforms will be introduced. We shall go back, in all probability, to the seven-year course: three preclinical years devoted to anatomy (normal anatomy two years, and topographic anatomy one year), histology, physiology and biologic chemistry, and four clinical years with compulsory separate examinations for each special branch. The middle course examinations seem doomed, as they have proved a failure and leave only twenty-five or thirty hours for each subject. The examinations actually take up from 100 to 300 hours of the professor's time each year, while only eighty or ninety are devoted to real class work. In addition, the students flit from one examination to another, center their mind on passing them, and have no time left for serious study.

There is a tendency to limit the number of medical students, as there are more than 5,000 in Buenos Aires and 1,500 at Rosario. Some professors must teach more than 800 students. There is neither room nor facilities for such a number. The net result is that many graduates lack the necessary experience. On top of the present excess of physicians here, there are yearly over 400 graduates per 10,000 inhabitants.

New institutes will be opened especially for the chairs of clinical medicine and clinical pediatrics. A building for the dentistry school is also planned.

Sanitary Work

After a tour of inspection through the coast provinces, Dr. Aráoz Alfaro, the head of the public health department, has decided to establish a public health station at Concordia and another at Paso de los Libres. Their work will be centered on child mortality, tuberculosis and trachoma, all these conditions showing undue prevalence rates.

The government of the Santa Fe province has devoted 350,000 pesos (about $140,000) to the construction of a home for the insane, to be placed under the control of the Rosario medical school.

Rockefeller Aid

In accordance with a request from the national health department, the Rockefeller Foundation has sent a committee, including Drs. G. Strode and N. G. Davis, to organize the antimalarial work in the northern districts. The committee has visited Salta, Jujuy and Tucumán provinces and will soon have a plan ready for the work to be conducted next year.

Personal

Dr. R. Argañaraz has been appointed professor of pediatrics in the Buenos Aires medical school.

Dr. Angel Centeno, emeritus professor of pediatrics and for many years the teacher of the vast majority of Argentine pediatricians, has died.

BERLIN

(From Our Regular Correspondent)

Sept. 26, 1925.

The Session of the League of German Medical Societies

About the middle of September, the forty-fourth session of the league of German medical societies (Der deutsche Aerztevereinsbund) was held in Leipzig. The total membership of the league comprises 39,000 physicians, by far the majority of the medical profession of Germany. As an economic auxiliary of the league, the Leipziger Verband was created in 1900, to oppose the growing domination of the *Krankenkassen,* or health insurance societies. In honor of its founder, Dr. Hartmann, the name Leipziger Verband was changed, two years ago, to the Hartmann Bund. For the reason that September 13 was the twenty-fifth anniversary of the Bund, this year's session had a commemorative aspect. Therefore, the meetings of the Deutscher Aerztevereinsbund and of the Hartmann Bund were exceptionally well attended. Several of the subjects discussed have interest beyond the borders of Germany.

Dr. Vollmann, gynecologist and editor of the official organ of the Deutscher Aerztevereinsbund, discussed the increased incidence of abortion in Germany. Vollmann raised the question whether induced abortion had increased to the extent of an epidemic. There are no exact statistics on miscarriages, but from the figures of the hospitals and lying-in institutions and the reports of gynecologists, reliable conclusions may be drawn. Thirty or forty years ago, there were about nine or ten miscarriages to 100 pregnancies. Now the number is several times that—in Berlin, around forty. This increase is due to artificial interventions. In the Berlin University Women's Hospital, Bumm established that in 1916 89 per cent. of miscarriages were purposely induced According to Hirsch in Berlin, the percentage was 78 per cent, and for the 31-36 age-group even 98 per cent Such destruction of infantile life will naturally affect the birth rate. In 1901, the birth rate in Germany per thousand population was 36.9; but for Berlin it was only 27.7, and in 1923 dropped to 21.6. As against the 1,612,000 births in Germany in 1921, it is estimated, therefore, that there were 400,000 induced miscarriages. Besides the dangers for the state and nation, there are the dangers for the individual woman: acute and chronic abdominal diseases and high mortality. In 1922, abortion and miscarriage claimed a third as many victims in women of the 20-40 age-group as tuberculosis.

After discussing the historical, social, judicial and medical aspects of the problem, and after considering, favorably and unfavorably, the abolition of the law prohibiting abortion, Vollmann presented his views on the attitude of the state toward the problem. He opposes abolition of the abortion laws but would approve modifications permitting the judge to remit penalties in individual cases attended by certain distressing circumstances or impelling motives. Interruption of pregnancy which resulted from legally proved rape should not be prohibited by law. He is opposed to making a proposed induction of abortion notifiable by physicians. The sole result of such a law would be to prevent women suffering from the effects of abortion from taking advantage of skilled medical assistance. Interruption of pregnancy by a physician, carried out according to the best teachings of medicine, particularly when performed to eliminate a menace to the pregnant woman, should be permitted by law. Such interruption of pregnancy may not be undertaken for social or economic considerations, for these are not within the jurisdiction of the physician. So-called eugenic motivation (to prevent the birth of physically and mentally inferior offspring), Vollmann explained, is based on considerations that are still too unsettled to guide physicians. Aside from emergency cases, a physician should never induce abortion without consulting with at least one other physician—if possible a specialist in the branch of medicine concerned. The best method—at least in the cities—is for the local medical association to appoint physicians to serve as a board of consultation. The result of the consultation should be put in writing, with the basis for the conclusions explained. The document should be sealed and transmitted for preservation to the *Aerztekammer* (chamber of physicians), or, if there is none, to some similar medical body. The general public needs enlightenment on the biology of pregnancy and the dangers of its interruption.

Finally, viewing the recent manifestations as an epidemic, the causes should be sought that they may be eliminated. In this respect, the state has been neglectful. The state, which protects the unborn child, and compels the mother (or parents) in advance of the child's birth, to assume the care of the offspring, takes on itself certain duties. Therefore, Vollmann recommends: (1) special protection of large families (to prevent cultured nations from dying out) through remission of taxes; additional state aid for large families, for educational purposes; special privileges in the selection of dwellings; preference in land grants; remission of taxes on dwellings; favoring of officials, workmen and employees with large families; (2) endeavors to inculcate in the people a better appreciation of the value of family life; (3) municipal or communal aid for pregnant women, protection in industrial life, proper prenatal and postnatal care, cash benefits for nursing mothers; (4) protection of the unmarried mother and of children born out of wedlock, home-finding for homeless infants, with adoption made easier, and better homes for foundlings.

A number of Vollmann's recommendations were adopted by the congress. It was brought out that the spread of abortion could not be combated solely by federal and police enactments. On the other hand, the abolition of the penalties for violations of the abortion law, as proposed by the social democrats and some of the feminine advocates of women's rights, was rigorously opposed. The congress admitted, however, that in some cases a milder penalty might be indicated, and presented proposals with respect to modifications in the law.

A Proposed Federal Code Pertaining to Physicians

For some time, German physicians have sought to secure the passage of a federal code pertaining to the physicians of entire Germany, to be patterned on the federal code pertaining to attorneys. At present, aside from certain provisions in some federal laws: for example, the laws pertaining to the regulation of industries and to the organization of social insurance, the legal regulation of medical matters is a delegated power of the eighteen individual states. The result is, there is no medical body in Bavaria corresponding to the *Aerztekammern*, or "chambers of physicians," which exist in Prussia, while Prussia lacks the state insurance system for physicians, which has been created in Bavaria. The proposed code opens as follows: "The mission of the German physician is the performance of health service for the German people. The exercise of the medical profession is not an industrial undertaking performed solely as a means of making a living but must be viewed as the performance of an individual service in the care of patients and as a general service in the promotion of the welfare of the state. Undue accentuation of the commercial side of professional activities exerts a lowering effect on the morale of the profession." The main object of a code is proclaimed to be the preservation to the German people of a medical profession that is imbued with these ideals. There follows a number of provisions, such as the right of privileged communication, and some others, which are hallowed by ancient custom. An outcropping of ultramodern views, however, is the statement that the avowal of scientific, political or religious views as such, if presented in an unobjectionable way, shall not constitute a violation of the ethical code.

The health insurance societies often endeavor to convince the general public that physicians are fighting the whole system of health insurance if they but try to protect themselves against the inordinate demands of the executive committees of the *Krankenkassen*. It is therefore important that the ethical code should contain this statement: "Every physician must, to the best of his ability, promote all movements looking toward the betterment of public health, and must likewise carry out the provisions of social legislation. He must be constantly mindful in the interest of public welfare of the importance of this duty. Every physician must, within the sphere of his activity, cooperate in the prevention and in the limitation of epidemics and must not think he has done his full duty if he complies with the laws pertaining to the notification of disease." For the same reasons, conceptions regarding the rightfulness of interrupting pregnancy and bringing on sterility must correspond with the ethical code. In accordance with usual medical ethics, the proposed law provides that a physician develop his practice by his performances and not by means of advertisements, underbidding and similar methods. The physician must show proper consideration for the situation of the patient; he shall be permitted, in dealing with poor persons, to remit part or all of the fee. In evidently urgent cases he must give treatment without advance payment. In urgent cases, he must assist another physician when requested. He must not oppose the calling in of a second physician, specialist or consultant. A consultant must not refuse a consultation without having good reason. In order that the relations between physicians may be harmonious, old customs are reduced to written form; for example, the rules governing relations with patients of other physicians; the required qualifications of a specialist; on what basis recognition as a specialist can be demanded of other physicians; the relations between attending physician and consultant. Other provisions seek to dignify applications for medical posts and the drawing up of contracts. One provision deals with partnerships. While such partnerships have long been common in the United States, it is only of late that they have become more frequent in Germany. No objections are raised to partnerships as such, although it is thought they should be confined to agreements between general practitioners or between physicians practicing the same specialty. Presumably, the wording of the provision is intended to prevent too much commercialism and is based on the same considerations that actuated the provision against a physician receiving from a specialist any reward for referring patients to him. Many speakers suggested modifications in the draft. The view was also expressed that where the unwritten laws of medical ethics fail to accomplish their purpose a written code also will be ineffective. At the close, all proposals requiring further consideration were referred to a committee. The preparation of a draft for a federal code pertaining to physicians was turned over to the business committee.

BUCHAREST

(From Our Regular Correspondent)

Sept. 18, 1925.

Preventive Injections Against Infectious Diseases of Children

Dr. Alois Soriceanu, assistant at a large children's clinic in Transylvania, says that measles and diphtheria seem to be now under our control. Two thousand preventive injections of convalescents' serum failed to protect in less than 4 per cent., and even here the technic may have been at fault. The Cantacuzino Serum Works in Bucharest is now making arrangements to supply convalescents' serum regularly to institutions threatened with measles. He mentions that he injected 116 children who had been exposed to measles from two to six days before with 20 c.c. of blood from adults or older children who presumably had had measles at some time. Only twelve developed measles, and these in a mild form. He endorses Dr. Rietschel's recommendation of this as valuable prophylaxis for infants and young children in the home, whether or not the effect is to be interpreted as a specific or merely a protein reaction. But scarlet fever prophylaxis is less promising. Soriceanu on five occasions injected a total of twenty contacts with scarlet fever convalescents' serum, and none developed the disease; only three developed it among eighty-eight in an institution, and two of twenty-eight family cases in another physician's practice. The protection proved effectual in thirty-five other contacts injected and isolated at once. The whole question of scarlet fever is still unsolved, says Dr. Soriceanu. His final word is that neither active nor passive immunization has proved of any avail against whooping cough.

New Health Bill

The Roumanian government has introduced a new measure dealing with public health administration. The main features are that the existing board of public health, which is a body of lay municipal representatives, is to be replaced by a commission of twelve members nominated by the ministry of health. In the bill as it stands, four of these are to be medical men, but it is possible that this will be altered, as the medical profession in Roumania will demand that still more medical men be nominated. The most hopeful provision of the bill is the power given to create health areas under whole-time officers, but it all remains to be done by proclamation. The socialists and a section of the press clamor for some measure of free medical attendance by government physicians, but it is improbable that much in that direction will be enacted under the present bill. At the same time, the health of the people has become a political catchword in both political parties which endeavor to form the new government, so that whatever party may win, the public health will benefit. It appears almost certain that some proposal for a national medical service of a clinical nature will be instituted. In Transylvania a considerable degree of state medical attendance already exists, and many big hospitals have been government institutions for many years.

Health Bureau in Schools

To safeguard children against the spread of disease and improve the sanitation of houses in the congested quarters of Bucharest, the board of education is planning the establishment of a bureau of health. Many of the trustees favor the plan, and if enough votes can be secured in the board, the scheme will be put to a practical test as soon as the public schools are opened for the fall term. The plan is to have the schools visited by competent medical inspectors, to learn from the school children of illness in their homes. As soon as information is obtained, the affected household will be visited, and every effort made to guard against spread of the disease, and also to improve the sanitary conditions. Teachers will be requested to report cases of illness and houses which they know are not sanitary to the bureau.

Albuminuria in Relation to Diabetes

According to Dr. Hatziegan of Cluj University clinic, there are three groups of cases in which albuminuria is associated with diabetes: (1) albuminuria due to arteriosclerosis, with secondary lesions in the heart and the kidneys; (2) albuminuria of epithelial origin, due to an intercurrent disease, particularly tuberculosis, and (3) albuminuria without renal manifestation, alternating with glycosuria. In the first class of cases are frequently seen fat diabetic patients who have become albuminuriac at an age difficult to determine, on account of the insidious development of this condition and the carelessness of the patient in seeking medical advice. In these cases the albuminuria appears subsequent to the diabetes and at the same age, from 45 to 55 years, at which it appears in arteriosclerosis. The clinical features are: abundant pale urine of low specific gravity—from 1.010 to 1.020—nocturnal polyuria, and a moderate amount of albumin, with or without a slight edema. Death occurs from uremia rather than from glycosuria. In the second class of cases, tuberculosis is the most common cause of the albuminuria. Among other causes is suppuration of the bladder, which is relatively common in diabetic women, owing to the introduction of micro-organisms from without. The third class of cases are found among private rather than hospital patients, and are discovered only by accident. In these the albuminuria and glycosuria may be considered as two syndromes of similar origin; Dr. Hatziegan characterizes this association as "albuminurious diabetes" as first described by Lancereaux in France. This association is found particularly in obese and gouty patients.

The Feats of Medical Science

In an address held before the medical society at its opening session, the president, Dr. Conrad spoke on the accomplishments of medical science in relieving human suffering, as well as the numerous annoyances and drawbacks experienced by the profession in its beneficent work. He gave entertaining illustrations of some of these drawbacks: the wiles of quackery, the credulity of the public, the confusion of thrifty commercialism with ethical proprieties, the tendency to fads in the profession itself, together with the overdoing of certain methods, and the risk of falling into ruts and superficial contentment. Against all these, however, he balances the great achievements of the profession; the triumphs of surgery; the better knowledge of the origin of diseases and their treatment, and all advances tending to diminish human suffering and adding infinite possibilities of comfort and enjoyment in human existence.

According to Dr. Letanovsky, a Transylvanian surgeon, immobilization for vertebral and hip joint disease promotes the formation of bladder calculi. He has operated in twenty cases of this kind in the last five years, most of which occurred in children from 6 to 8 years old. One boy, aged 10, had to have the hip cast removed to allow suprapubic removal of a calculus. Lithiasis was suggested by incontinence day and night, frequent or interrupted micturition, hematuria, pain in the end of the penis, frequent erections, straining, and involuntary manipulation of the penis. These symptoms are rarely associated. The children's straining, in two cases, induced prolapse of the rectum, but this subsided after the removal of the bladder stone. If the child can urinate better reclining than erect, and not at all when lying prone, a calculus blocking the outlet is probable. Dr. Letanovsky urges the suprapubic incision rather than taking the chance of injuring the narrow passage by lithotrity in a child. Healing was perfect in seven of the fourteen cases in which he sutured the bladder at once.

Marriages

Francis A. Malone, Waterford, Wis., to Miss Gertrude DeKelver of Rochester, at Chippewa Falls, August 17.

Leonidas McFerrin Draper, Warrenton, N. C., to Miss Jeddie Mae Bristow of Raleigh, N. C., June 13.

Leland Francis Hyslop, Blair, Wis., to Miss Cecelia Ann McAvoy of Kingston, Ont., Canada, June 4.

Ben Spaulding Hill, Kenosha, Wis., to Miss Grace Marguerite Mattern of Mara, Pa., July 25

Evans Hugo Wangelin, St. Louis, to Miss Wilma Friend of East St. Louis, Ill., June 25.

Leonard Lee Welch, Marietta, Ga., to Miss Mary Emman Nolen of Athens, Ala., June 10.

Waldo B. Ison, East St. Louis, Ill., to Miss Henrietta Weinzel of St. Louis, July 18.

Roger B. Burrus, Hickman, Ky., to Miss Ella B. Moynor of Nashville, Tenn., June 6.

Edward F. Mielke, Appleton, Wis., to Miss Beulah Connell of Waukesha, August 18.

Etta G. Gray to Mr. Addison H. Ely, both of Los Angeles, recently.

Deaths

John Blasdel Shapleigh ⊕ St. Louis; St. Louis Medical College, 1881; member of the American Otological Society; lecturer, diseases of the ear, 1886-1890, St. Louis Medical College; dean, 1901-1902, professor of otology, 1899-1912, clinical professor, 1912-1922 and since 1922 emeritus professor, Washington University School of Medicine; on the staffs of the Barnes, St. Louis Children's, and Barnard Free Skin and Cancer hospitals and St. Luke's Hospital, where he died, September 15, following an operation, aged 67.

Otis D. Stickney ⊕ Atlantic City, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1902; member of the American Academy of Ophthalmology and Oto-Laryngology and the Philadelphia Laryngological Society; on the staff of the Atlantic City Hospital; aged 47; died, September 27, of injuries received in an automobile accident.

Harry Humfreville ⊕ Waterville, Kan.; Kentucky School of Medicine, Louisville, 1875; formerly president of the Marshall County Medical Society; for forty years surgeon to the Missouri Pacific Railroad; at one time county health officer; aged 71; died, September 9, at the Grandview Sanitarium, Kansas City, following a long illness.

Hunter Samuel Woodbery ⊕ De Land, Fla.; University of Virginia Department of Medicine, Charlottesville, 1911; president and formerly secretary of the Volusia County Medical Society; served in the M. C., U. S. Army, during the World War; at one time on the staff of De Land Memorial Hospital; aged 38; died in September, at Capitola.

James A. McLaughlin ⊕ Minneapolis; McGill University Faculty of Medicine, Montreal, Que., Canada, 1894; served in the M. C., U. S. Army, with the rank of captain, during the World War; formerly on the staff of the City Hospital; aged 55; died, September 16, following a long illness.

Charles Harper Walworth, Oakland, Calif.; California Eclectic Medical College, Los Angeles, 1897; College of Physicians and Surgeons of San Francisco, 1901; on the staff of the Berkeley (Calif.) General Hospital; aged 60; was killed, July 19, in an automobile accident.

Patrick Walter H. McKeown, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1889; M.R.C.S., England, 1890; associate professor of clinical surgery, University of Toronto Faculty of Medicine; on the staff of St. Michael's Hospital; aged 59; died, September 4.

Emmett Starke Ballard, St. Joseph, Mo.; Bellevue Hospital Medical College, New York, 1898; member of the Missouri State Medical Association; formerly city physician and member of the board of education; aged 50; died, September 24, following a long illness.

Westerfield B. England, Mudlick, Ky.; University of Tennessee College of Medicine, Memphis, 1900; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1906; aged 50; died, September 18, at Waco, Texas

George Melbourn Depew, Summer Shade, Ky.; Vanderbilt University Medical Department, Nashville, Tenn., 1893; for several years postmaster of Summer Shade; aged 64; died, September 20, of heart disease.

George B. Hoopingarner, Elkhart, Ind.; Medical College of Indiana, Indianapolis, 1882; Jefferson Medical College of Philadelphia, 1888; member of the Indiana State Medical Association; aged 66; died, September 19, of heart disease.

Spencer Marcus Rice ⊕ Terre Haute, Ind.; State University of Iowa College of Medicine, Iowa City, 1879; formerly on the staff of St. Anthony's Hospital; aged 70; died, September 20, at Rochester, Minn., of cerebral hemorrhage.

Charles Thomas Ballantyne, Ottawa, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1900; on the staff of the Ottawa Civic Hospital; aged 49; died suddenly, June 10, of angina pectoris.

Julius I. Metzger, New York; Medical Department of Columbia College, New York, 1882; member of the Medical Society of the State of New York; aged 66; died, September 29.

Henry Boteler Gross, Jefferson, Md.; University of Maryland School of Medicine, Baltimore, 1871; for many years member of the board of education; aged 76; died, September 14.

Humphrey Swain, Goshen, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1866; Civil War veteran; aged 82; died, September 11, of cerebral hemorrhage.

Elmer E. Kelso, Mooresville, Ind.; Medical College of Indiana, Indianapolis, 1891; aged 62; died, September 22, at the Methodist Hospital, Indianapolis, following a long illness.

Carlisle Lamar Nottingham ⊕ Cape Charles, Va.; Maryland Medical College, Baltimore, 1905; aged 41; died, September 18, at Saranac Lake, N. Y., of pulmonary tuberculosis.

Augustus R. Schaefer, Alexandria, Ind.; Eclectic Medical Institute, Cincinnati, 1881; aged 64; died, September 20, at a hospital in Logansport, following a long illness.

Henry S. Garfield, Pendleton, Ore.; Hahnemann Medical College of the Pacific, San Francisco, 1890; county coroner; aged 65; died, September 17, of heart disease.

William Leland Hughlett ⊕ Cocoa, Fla.; Medical College of Virginia, Richmond, 1884; formerly a member of the state legislature; aged 63; died, September 18.

Sheppard Emmitt Brinson, Stillmore, Ga.; University of Georgia Medical Department, Augusta, 1885; aged 74; died, September 20, following a long illness.

Peter Stuart, Guelph, Ont., Canada; Detroit (Mich.) Medical College, 1881; L.F.P.S., Glasgow, 1883; aged 65; died, August 25, following a long illness.

John Burritt Mann, Peterboro, Ont., Canada; University of Toronto Faculty of Medicine, 1910; aged 40; died, September 25, of burns received in a fire.

Murdock Alexander Macaulay, Halifax, Nova Scotia, Canada; Dalhousie University Faculty of Medicine, Halifax, 1904; aged 61; died, August 9.

Thomas Walter Wiley, McKinney, Texas; Atlanta Medical College, 1859; Confederate veteran; aged 86; died, September 14, following a long illness.

Barnum L. Cleveland, Flint, Mich.; Cleveland University of Medicine and Surgery, 1870; aged 80; died, September 19, of carcinoma of the stomach.

James Walter Reynolds, Brundidge, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1885; died, September 21, of heart disease.

John Kelly Crawford ⊕ Cooperstown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1868; aged 83; died in September.

Harvey Edward Scott, Battle Wharf, Ala.; Vanderbilt University Medical Department, Nashville, Tenn., 1880; aged 70; died September 2.

Samuel John Kirk, Macleod, Alta., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1898; aged 55; died, August 7.

William Jay McClintock, Waycross, Ga.; Washington University Medical School, St. Louis, 1902; aged 67; died, September 18.

James Robert Laing, Hamilton, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1917; aged 33; died recently.

James Ross Collie, River John, Nova Scotia, Canada; Medical School of Harvard University, Boston, 1869; aged 84; died, July 11.

Peter F. Gates ⊕ Chicago; Harvey Medical College, Chicago, 1903; aged 64; died, August 1, of acute dilatation of the heart.

Henry W. Parchen, Phillips, Neb.; Northwestern Medical College, St. Joseph, Mo., 1882; died, August 27, following a long illness.

Thomas L. Keys, Rockwell, Texas; University of Louisville (Ky.) School of Medicine, 1885; aged 69; died in September.

William Wallace Wharton Courtney, Detroit; Detroit College of Medicine and Surgery, 1891; aged 64; died, September 19.

Patrick H. Swaim, Ridge Farm, Ill. (licensed, Illinois, 1882); aged 75; died, September 23, of cerebral hemorrhage.

Robert Emmett Bird, Rockport, Mo.; Medical College of Ohio, Cincinnati, 1879; aged 70; died, September 13.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

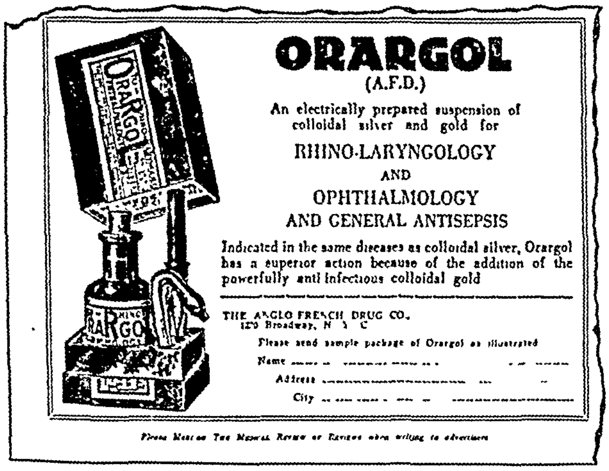
ORARGOL NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

Orargol (The Anglo-French Drug Co., New York) is stated to be a colloidal suspension of silver and gold prepared electrically from an alloy composed of gold, 10 per cent. and silver 90 per cent. Orargol is marketed in two forms: Orargol Injectable, containing colloidal gold and silver 0.05 per cent. and Orargol Noninjectable for external use and oral administration, containing colloidal gold and silver, 0 1 per cent.



ORARGOL
(A.F.D.)
An electrically prepared suspension of colloidal silver and gold for
RHINO-LARYNGOLOGY
AND
OPHTHALMOLOGY
AND GENERAL ANTISEPSIS

Indicated in the same diseases as colloidal silver, Orargol has a superior action because of the addition of the powerfully anti infectious colloidal gold

THE ANGLO FRENCH DRUG CO.
120 Broadway, N. Y. C.

Please send sample package of Orargol as illustrated

Name

Address

City

Please Mention The Medical Review of Reviews when writing to advertisers

In advertising it is claimed that silver and gold are "the most active antiseptics of all the colloidal metals used against infectious conditions." It is claimed:

> "Indicated in the same diseases as colloidal silver, Orargol has a superior action because of the addition of the powerfully anti-infectious colloidal gold, also for the reason that the particles of both metals are in a state of much finer sub-division—and therefore, more active—than can be obtained by chemical means."

No evidence of any kind was submitted to show that this mixture has the antiseptic action attributed to it, or to substantiate the claim that the metals in Orargol are more finely divided than can be obtained by chemical means. If the antiseptic activity of Orargol is due to the ionized metals, as is probable, a finer grain of the colloids would not necessarily insure high activity. In fact, the preparation has a slightly astringent action on the nasal mucosa, indicating the presence of ionized metal although the information furnished by the Anglo-French Drug Company implies that the metals are present only in colloidal form. These claims must be considered unwarranted until they are supported by acceptable evidence.

No evidence was presented to the Council for the claim that Orargol *has a superior action over colloidal silver preparations* because of the presence of the gold. Until this claim is established, the combination of silver and gold in one mixture must be considered irrational.

On the basis of the available evidence, the Council declared Orargol inadmissible to New and Nonofficial Remedies because the claims made for it are unwarranted and because it is an unscientific mixture.

RAYMINOL NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

Rayminol (Doyle), according to its proprietors, the Phairmount Laboratories of Hackensack, N. J., provides a marked advance in "catalytic therapy." The preparation is offered to physicians "as a worthy member of your armamentarium" and "with the profoundest respect of your trust—and a deep admiration of your ethical selectiveness."

According to the label, Rayminol is "an inimitable composition founded upon exhaustive research," and is stated to be "a scientific union of liquid petrolatum, aromatized rhubarb and phenolphthalein (0.03 gm. to each 4.0) pancreatized." The term "pancreatized" is explained in the firm's advertising by the claim that Rayminol contains "an extract of the entire pancreas Gland containing all of the constituents of the gland; exhibiting great potency in respect to the Enzymes, Trypsin, Amylopsin, Lipase . . ." The amount of this extract or its potency is not declared. From these statements it appears that Rayminol is claimed to be a preparation containing liquid petrolatum, phenolphthalein, a preparation of rhubarb, and a pancreatic preparation, all in undeclared amounts except the phenolphthalein, which appears to be present in the proportion of 0.03 gm. per 4 c.c. (one-half grain per fluidrachm).

According to the label on the trade package, Rayminol is "a perfect internal cleanser—lubricant and intestinal digestive, especially indicated in the various stages of constipation." The following also appears on the label:

> "Rayminol (Doyle) is peculiarly suitable for intestinal therapy—it will control fermentative and putrefactive changes in the intestines and thus prevent the constitutional absorption of the products of such changes—assists in intestinal digestion generally and subdues catarrhal and inflammatory processes affecting the liver and bile tract.
>
> "Rayminol is one of the most efficient and complete products for constipation, or rather autointoxication which constipation causes—affecting the brain, nervous and muscular systems with fermented poisons and wastes—the underlying cause of many a case of 'blues'—nervous depression—despondency—'too tired to think' feeling—biliousness—headache, *some forms of indigestion, stomach trouble and gastritis.*"

It is not true that Rayminol is a perfect intestinal digestive or internal cleanser (whatever that may be taken to mean), or that it is especially indicated in all cases of constipation. The broad claim that Rayminol subdues catarrhal and inflammatory processes affecting the liver and bile tract is obviously false The routine administration of a pancreatin preparation in the treatment of constipation is irrational. The mixture is especially objectionable in that the dose (one to four teaspoonfuls twice a day) contains from one to four grains of phenolphthalein: four grains of phenolphthalein a day is excessive for routine use.

Rayminol is unacceptable for New and Nonofficial Remedies because it is a complex, irrational mixture of indefinite composition, which is marketed under a nondescriptive name with unwarranted therapeutic claims and in a manner that fosters the ill-advised use of purgatives by the public.

Accidents at Coal Mines.—One hundred and ninety-five lives were lost in coal mine accidents in August in the United States, according to the Department of Commerce. The fatality rate was 3.63 per million tons of coal mined, a reduction of 11 per cent. from the fatality rate of August of last year. Ten men were killed at Wilkes-Barre, August 3, in an explosion. There were forty-six fatalities at anthracite mines in Pennsylvania and 149 in bituminous mines throughout the country. For the first eight months of this year there were 1,461 fatalities at mines, and for the same period last year 1,661. The fatality rate for this period is 3 83 per million tons of coal mined while for last year in the same period it was 4.57 per million tons of coal mined, a reduction of 16 per cent. Ten major disasters with a total loss of 198 lives occurred during the first eight months of 1925 and seven major disasters with a total loss of 408 lives in the corresponding period last year.

Correspondence

MEDICAL SHORT STORY WRITERS

To the Editor:—I am interested in compiling a collection of short stories written by physicians. As many of these stories are published under assumed names, or the medical degree of the author is omitted, it is difficult to locate them. I am therefore writing to ask that if you or your readers know of any short stories published by medical men you will kindly communicate the fact to me.

Harold Hays, M.D.,
22 West Seventy-Fourth Street,
New York.

CANCER HEREDITY

To the Editor:—I am quoting from the remarks of Dr. F. C. Wood of New York (The Journal, October 3, p. 1050) on the subject of cancer heredity: "Of course, the animal experimentation done by Maud Slye in Chicago and by Bullock and Curtis in my laboratory have definitely proved that in animals a susceptibility to cancer is transmissible. Of that there is no question. The breeding experiments, however, are so complicated and take so long that if they were applied to human beings *it would mean that for the last 5,000 years both parents of these unfortunate human beings would have had to have cancer.* That is a concentration of breeding which cannot occur in the human race. So the facts of the high incidence of cancer in these experimental studies cannot be applied in full value to human beings."

Exactly what Dr. Wood meant in the portion that I have italicized is not clear, but there is no meaning which these words could possibly have which in any way represents the scientific facts.

The 100 per cent. cancer strains that have been produced in any laboratory have been produced from a double cancerous parentage somewhere in the line. But this does not mean that there must have been a series of double parentage for any length of time corresponding to anything like 5,000 years of human heredity, or even for more than one generation. Double cancerous parentage for one generation only will produce 100 per cent. cancerous offspring, exactly as double albino parentage for one generation only will produce 100 per cent. albino offspring.

The long series of many generations of 100 per cent. cancer have been charted, not because countless generations were necessary to produce them, but to demonstrate that they actually *were* 100 per cent. cancer strains and continued so for as many generations as we continued a double cancerous parentage. It is not alone these strains of double cancerous parentage which prove the inheritability of cancer, but still more potent in this proof is the behavior of cancer in hybridization.

Only two generations of exact facts are necessary to demonstrate what this behavior is where the cross is between a cancerous individual and a noncancerous individual who is not a cancer carrier. Three generations of exact facts—not of double cancerous parentage—are necessary to determine how cancer behaves in heredity when a hybrid carrier is mated with a cancerous individual, or with a noncancerous individual that is not a cancer carrier. This is true in mice, in man or in any other animal, or in any plant.

This demonstration of the behavior of the cancer tendency in hybridization has been shown in many charts published from this laboratory for the last fifteen years.

It is the behavior of any character in hybridization which indisputably proves its inheritability, since only heredity could explain the segregating out and the transmission as such of a character unchanged, when the two parents are unlike in any given character, as they must be in a true hybridization.

The difficulty in studying human heredity is not that we cannot have double cancerous parentage, or any other type of double parentage for 5,000 years, but that we cannot get the exact facts for even one generation. It is because of this lack of exact facts and because we cannot experiment on human beings in this and many other lines that we must get our exact facts from animal experimentation.

That we are justified in applying these facts, where they are basic biologic facts, is one of the best assets derived from the discovery of the fact of evolution.

Maud Slye, Chicago.

Cancer Laboratory, Otho S. A. Sprague
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Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MERCUROCHROME — SUCTION APPARATUS — DIET AND SIZE OF CHILD

To the Editor:—1. Is there danger of poisoning from mercurochrome-220 in the hands of the laity? 2. Is there any other suction apparatus than Sorensen's on the market for use in tonsil work, etc.? 3. A woman went to a city hospital to be confined and was delivered of a 6½ pound baby. It was said that the baby was small because of prescribed diet. Can the baby's weight be effectually controlled; if so, by what diet list? Does the underfed, small baby have as good a start in life as the larger, well nourished one? We have read of undernourished mothers in famine stricken countries and during war times bearing rickety and marantic children. What is the difference?

J. G. Walker, M.D., Attica, Kan.

Answer.—1. Since mercurochrome-220 soluble contains from 23 to 25 per cent. of mercury, there would seem to be a possible danger that it might decompose to liberate this drug in its ionic (potent, poisonous) form. However, sufficient evidence has been published by Drs. Young, Scott and Hill (*J. Urol.* **12**:237 [Sept.] 1924) to show that mercurochrome causes little or no gastro-intestinal disturbance until it has been taken in large doses for a week or more. They definitely conclude that it is nonpoisonous, after having administered it to patients in doses of from 0.9 to 1.2 gm. daily for as many as ten days at a time. In New and Nonofficial Remedies, 1925, page 232, it is stated that no systemic effects have been observed following the local application of mercurochrome in man. These considerations, together with the additional fact that the preparation sold to the public is marketed only in small packages of solution, would seem to make the use of mercurochrome by the laity no more dangerous than that of tincture of iodin.

2. Suction and pressure machines are offered by the following firms:

V. Mueller & Co., 408 South Honore Street, Chicago: the "Beck-Mueller."
Jaeckh Manufacturing Company, 422 East Sixth Street, Cincinnati: the Robertson anesthesia, suction and pressure cabinet.
Toledo Technical Appliance Company, 2226 Ashland Avenue, Toledo, Ohio: the McKesson apparatus.
J. Sklar Manufacturing Company, 133 Floyd Street, Brooklyn: the Sklar E. N. T. specialist's outfit.
The Mim Company, 632 Woodward Building, Washington, D. C., makes suction tubes for tonsillectomy.

3. The matter of influencing the weight and size of the new-born child by means of diet seems to be of continual interest, since queries regarding it have already been answered in the columns of The Journal on two occasions, Nov. 16, 1916, and March 2, 1918. For many centuries the notion has been prevalent that if the women eat gluttonously during pregnancy and do not take much exercise, the children will be overdeveloped and difficult deliveries will result. As laziness in the latter weeks is likely to postpone the birth, overgrowth of the child from prolonged pregnancy would add to the dystocia. While no one has made any scientific study of this particular aspect of the matter, experience seems to point to the truth of the notion. On the other

hand, experience and scientific research seem to prove conclusively that it is impossible to influence the size and weight of the new-born child by any special diet during pregnancy excepting by actual starvation. In this event, abortion and premature labor are more common.

In 1889, Prochownik recommended a diet poor in carbohydrates and water for the last six weeks of pregnancy with the single purpose of reducing the fat of the child and stated that in three cases he had facilitated labor in contracted pelves. A few American authors believe in this diet, but the majority do not. English and French writers mostly are silent on the subject. Among the Germans, Bumm, Jaschke and Pankov and Stoeckel give no value to it and quote the great experiment of the hunger blockade during the war in confirmation.

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One American author, after describing Prochownik's diet, says that his "few experiences with it have been absolutely negative, and, indeed, daily observation in other cases, for example, tuberculosis, carcinoma, hyperemesis gravidarum and diabetes, show that the nutrition of the mother has little effect on the growth of the child, which is in fact a parasite." Dr. Hugo Ehrenfest of St. Louis gave this subject a critical study in 1919, and those interested should consult his paper. He comes to the conclusion expressed above and shows that the child is a parasite on the mother, forcing precedence for its own nourishment at her expense. He quotes the studies of numerous physiologists which do not justify the assumption that there is increased nutrition of the fetus in the presence of increased nutritive material. The size of the child is dependent on the length of the pregnancy, endocrinal balance, heredity and constitution and, it might be added, the state of health of the endometrium and placenta. Ehrenfest concludes that the preponderance of the evidence, both clinical and laboratory, proves that restriction of diet short of absolute starvation has no effect on the size of the child An obstetrician in a clinic in which two attending men are committed to dieting and sweating pregnant women states that babies delivered by him live alongside the others. After many years of observation, he declares that there is no appreciable difference in size, in weight or in vitality.

ASTHMOLYSIN

To the Editor:—I am enclosing a card relative to asthmolysin. May I suggest that you put a notice in The Journal about this German proprietary?

O. B. Fossum, M.D., San Luis Obispo, Calif.

Answer.—From German pharmaceutic and chemical journals it appears that asthmolysin has been on the market for at least ten years.

According to the advertising, asthmolysin is "a combination of the suprarenal and pituitary hormones in distinct proportions" which is prepared by a "special method."

In the series of articles on glandular therapy, published under the auspices of the Council on Pharmacy and Chemistry, Dr. Joseph L. Miller states (The Journal, Nov. 29, 1924, p. 1769) that the use of pituitary in bronchial asthma is contraindicated.

FREEZING OF BIOLOGIC PREPARATIONS

To the Editor:—Kindly advise whether freezing is detrimental to what good there may be in: (1) mixed cold vaccines; (2) canine rabies vaccine (single dose); (3) pollen extract; (4) typhoid serum for immunization; (5) insulin, and (6) the serums and vaccines in general. Some druggists are using iceless refrigeration, which brings the temperature down low enough to freeze these articles solid. Please omit my name.

M.D., Cleveland.

Answer.—There is no indication in the present knowledge that freezing interferes seriously, if at all, with the antigenic or immunizing properties of vaccines and pollen extracts, provided the temperature is fairly constant and the products in question are not frozen and thawed repeatedly over a considerable period. In the case of diphtheria toxin-antitoxin, the question of the effects of freezing has not been settled finally; but, as it is possible that freezing may reduce the antitoxic power of diphtheria antitoxin, it is now recommended that mixtures containing the minimum practical amount of toxin (one-tenth L+ dose in an injection) be used (E. R. Kelly, G. W. McCoy and others, The Journal, Feb. 16, 1924, p. 567). It follows that possibly freezing may reduce antitoxic or anti-infectious properties of other serums, and probably it is most desirable to keep serums and vaccines at a temperature a little above freezing.

We do not know of any "typhoid serum" for immunization. Vaccines composed of killed bacilli are used for that purpose.

There does not seem to be anything known concerning the effects of freezing on insulin.

YELLOW FEVER COMMISSION — TYPHOID FEVER IN AMERICAN EXPEDITIONARY FORCES

To the Editor.—Kindly tell me: 1. Who were the four members of the commission of the United States Army Medical Department who went to Cuba in 1900 to prove the mosquito theory of the transmission of yellow fever, and which one of these men deliberately allowed himself to be bitten by an infected mosquito and died of the disease? 2. How many members of the A. E. F. contracted typhoid fever, and how many died of the disease?

Mrs. Walter M. Briggs, Bowling Green, Ky.

Answer.—1. The U. S. Army medical officers composing the Yellow Fever Commission were Drs. Walter Reed, James Carroll, Jesse W. Lazear and Aristides Agramonte. Dr. Carroll contracted yellow fever experimentally and recovered; Dr. Lazear was bitten by an infected mosquito experimentally and did not contract the disease; later, however, he was bitten accidentally by a mosquito in the yellow fever ward and contracted the disease and died.

2. In the Surgeon General's report for the year 1919, page 47, is this statement: "With the same admission rates for typhoid fever in 1917-1918 as in 1861-1862, there would have been 226,001 cases and 62,694 deaths; as it was, there were 1,083 cases and 158 deaths."

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M.D., Ill.

Answer.—1. Following is a list of references to cases of argyria following the use of silver preparations:

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To the Editor:—1. Is the use of a 1: 4,000 mercuric chlorid solution as a vaginal douche in leukorrhea, at intervals of several days, injurious? 2. If an asthma patient shows a negative skin reaction to tobacco, is it safe to conclude that its use, even if excessive, is without effect on his disease?

M.D.

Answer.—1. A 1 : 4,000 mercuric chlorid solution may, if repeated sufficiently often, cause mercurial poisoning from cumulative absorption of the mercury precipitated on the mucous membrane. For this reason, a less toxic antiseptic is preferable.

2. No. Excessive use of tobacco acts as an irritant to the respiratory mucous membrane, and may aggravate the bronchitis accompanying asthma.

THE AUDITION DEVICE FOR HEARING

To the Editor:—Will you kindly inform me of the status of the devices made by the Audition Corporation, Wilson Building, Hoboken, N. J.?

C. C. Bunch, Iowa City.

Answer.—The Audition device is made apparently for the purpose of producing noises and vibrations. The otologists who have given it a thorough trial believe that it may be of some value to persons who hear better in a noisy place, but even in such instances the response is beneficial only for a few hours.

Correspondence

MEDICAL SHORT STORY WRITERS

To the Editor:—I am interested in compiling a collection of short stories written by physicians. As many of these stories are published under assumed names, or the medical degree of the author is omitted, it is difficult to locate them. I am therefore writing to ask that if you or your readers know of any short stories published by medical men you will kindly communicate the fact to me.

Harold Hays, M.D.,
22 West Seventy-Fourth Street,
New York.

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Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

American Board of Otolaryngology: Chicago, Oct. 19. Sec., Dr. H. W. Loeb, 1402 South Grand Blvd., St. Louis, Mo.

Arkansas: Little Rock, Nov. 10-11. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville.

California: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Connecticut: New Haven, Nov. 10. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Maine: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Massachusetts: Boston, Nov. 10-12. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

Missouri: Kansas City, Oct. 27-30. Sec., Dr. James Stewart, Jefferson City.

Nevada: Carson City, Nov. 2. Sec., Dr. Simeon L. Lee, Carson City.

New Jersey: Trenton, Oct. 20-21. Sec., Dr. Alex. Macalister, Trenton Trust Bldg., Trenton.

Philippine Islands: Manila, Nov. 10. Sec., Dr. Jose V. Gloria, 686 Rizal Ave., Manila.

South Carolina: Columbia, Nov. 10. Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

Connecticut July Reciprocity Report

Dr. Robert L. Rowley, secretary of the Connecticut Medical Examining Board, reports that 25 candidates were licensed by reciprocity and one candidate was licensed by endorsement of credentials at the special meeting held at Hartford, July 31, 1925. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1910)	Wisconsin
Rush Medical College	(1924)	Illinois
Johns Hopkins University	(1921)	Maryland
Boston University	(1923)	Mass.
Harvard University..(1910, 2) Maine, Massachusetts,	(1923)	Michigan
Tufts College Medical School........(1906), (1913), (1922) Rhode Island	(1924)	Mass.
Washington University	(1922)	Missouri
Columbia University ....(1906),	(1920)	New York
Cornell University........(1911), (1919),	(1922)	New York
New York University Medical College	(1891)	Virginia
Syracuse University	(1908)	New York
Temple University	(1917)	Penna.
Woman's Medical College of Pennsylvania	(1901)	Penna.
University of Vermont........(1921) Massachusetts,	(1924)	Vermont
McGill University	(1919)	Michigan
Comenian University, Czechoslovakia	(1915)*	Maine

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Harvard University	(1923)	N. B. M. Ex.

* Graduation not verified by American Medical Association.

Colorado July Examination

Dr. David A. Strickler, secretary, Colorado Board of Medical Examiners reports the written examination held at Denver, July 7, 1925. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 41 candidates who took the physicians' and surgeons' examination, 34, including one osteopath, passed, and 7, including one osteopath and one undergraduate, failed. Fourteen candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado School of Medicine	(1925)	76.8, 79.5, 81.2, 82.1, 82.3, 83.2, 83.5, 84.1, 84.6, 85.7, 85.9, 86.3, 86.7, 87, 87.6, 87.6, 87.8, 88.4, 88.6, 88.6, 88.7, 88.8, 89.3, 90.2, 91, 92.9
Kansas City College of Medicine and Surgery	(1925)	75
Kansas City University of Phys. and Surgs.	(1925)	77.6, 83.8, 84.4
St. Louis College of Phys. and Surgs......(1921) 75.8,	(1925)	82.5
Washington University College of Medicine	(1922)	87.3
Osteopath		80.7

FAILED

College	Year Grad.	Per Cent.
Kansas City College of Med. and Surg....(1923) 43.3,	(1924)	68.5
Kansas City University of Phys. and Surgs.	(1924)	65.5
St. Louis College of Physicians and Surgeons	(1925)	64.5
University of West Tennessee, Coll. of Med. and Surg.	(1921)	67.2
Undergraduate		68.1
Osteopath		57.3

LICENSED BY RECIPROCITY

College	Grad. Year	with Reciprocity
University of Arkansas M	[illegible]	Arkansas
Loyola University School		Illinois
Northwestern University		Illinois
Iowa College of Physician		Iowa
Keokuk Medical College	(1911)	Oklahoma
University of Kansas School of Medicine	(1912)	Kansas
Johns Hopkins University Medical Department	(1922)	Maryland
Kansas City Medical College	(1901)	Missouri
Barnes Medical College	(1908)	Illinois
Creighton Medical College	(1924)	Nebraska
Albany Medical College	(1922)	New York
University of Oklahoma School of Medicine	(1915)	Utah
Memphis Hospital Medical School	(1911)	Alabama
University of Jurjev, Russia	(1899)*	Connecticut

* Graduation not verified by American Medical Association.

Book Notices

The Action and Uses in Medicine of Digitalis and Its Allies. By Arthur R. Cushny, M.A., M.D., LL.D., Professor of Pharmacology in the University of Edinburgh. Cloth. Price, $6. Pp. 303, with 76 illustrations. New York: Longmans, Green & Co., 1925.

Cushny has performed a difficult task with consummate skill and, as he says, no essential paper has escaped attention. This may surprise some whose prolific writings have contributed nothing of permanent value to the subject. The pharmacologist will find an excellent analysis of previous work, and the clinician will find that the conclusions reached are set forth in simple terms. On the other hand, few will find all parts of the monograph of equal interest and some will prefer to omit the first four chapters, which deal mainly with the general characters of members of the digitalis group and their action on the frog's heart. These details are complex, and Cushny says (p. 70) that the subject lacks practical therapeutic interest. A brief summary of the action of digitalis on the frog's heart is given on page 77. The chapter that deals with the action on the mammalian heart is less difficult, fortunately, for an understanding of this is essential for the therapeutic use of digitalis bodies. Few details of this monograph can receive consideration in a short review such as this, but attention may be directed to Cushny's explanation (p. 131) of the periodic variation in the systolic and diastolic excursions of the auricles and ventricles so often observed in the laboratory. The sixth chapter deals with blood pressure and vascular action, and it is to be hoped that Cushny has given a quietus to a pernicious view that long dominated many minds with reference to the supposed danger of using digitalis in the presence of high blood pressure. Another fallacy, as widely held at one time, but of less importance, concerns the use of digitalis in aortic insufficiency. Cushny says that while digitalis is often useless in this condition, because such patients do not present themselves for treatment until the damage has become irreparable, the slight increase in the regurgitation due to the slowing induced is of minor importance and may be more than compensated for by the increased output of the heart due to digitalis. The seventh and eighth chapters treat of the action on various organs and tissues and the problems of absorption, distribution, elimination and cumulation. The latter subject is no longer the bugbear of digitalis therapy that it was for many years, and Cushny calls attention to the fact that this persistence and summation of action are an advantage whereby a smooth therapeutic stage may be attained without danger to the patient.

The author states (p. 209) that in no department of medicine have the results following animal experimentation been more quickly applied in the explanation of therapeutic experiences and theories, and that after the physiologic doctrines of Gaskell began to be applied to clinical problems, and the study of function had obtained greater recognition, more progress was made in the therapeutic use of digitalis in fifteen years than had been made in the previous century. Attention is called to the undue emphasis that has been placed on the slowing of the heart, though slowing is often absent when digitalis proves beneficial. The author explains clearly why the high initial dosage that Eggleston has recommended is entirely safe when one observes the precautions that are especially enjoined. The author adopts a cautious attitude toward the routine use of digitalis in pneumonia and holds that the evidence does not justify its use until cardiac symptoms indicate it. He does not recommend it in hemorrhage and shock. He does not discuss the use of digitalis preliminary to surgical operations, probably because no satisfactory evidence is afforded by work that has been done in that field. The value of the assay of these drugs as well as its limitation is recognized by Cushny, and his argument in its favor will convince any skeptic, unless he is one of those that will find it equally incomprehensible whether the amount of active principle is expressed in milligrams or in frog units.

It is especially desirable that those who believe the difficulties and disappointments that follow the use of official preparations of digitalis may be avoided by the use of one of the proprietary substitutes advertised with extravagant claims should read what Cushny has to say. Concerning such articles, he says (p. 263), "Much less are the preparations available for therapeutic purposes to be regarded as pure substances or as incorporating the whole virtues of digitalis. This would be of less moment if these so-called digitalines, digitoxins, gitalins and digalens were reliable in strength; unfortunately, it has not yet been proved possible even for the same manufacturer working by the same method to put a uniform product on the market. And the more elaborate the method, the more do different samples of the final product seem to vary in strength. The 'pure principles' of digitalis on the market are to be regarded with distrust and to be prescribed with care." With especial reference to the fear of cumulation, he says, "Any digitalis preparation that is not cumulative and that does not produce nausea is inert and so weak that it is valueless. Cumulation and emesis are the essence of the digitalis action and can no more be eliminated than the spots on the leopard's skin—none of them is superior to a carefully standardized pharmacopeial preparation and all are sold at extravagant prices. In some instances the strength has been found to vary widely and this is a source of danger."

The bibliography of about 600 references is valuable because of the quality of the papers rather than because of the number of the references. There is an index showing the pages of the book where each paper is considered. Cushny states that most of those who have compared the chief drugs of the group revert to digitalis, but it is astonishing that he does not take a more positive stand with reference to the preeminence of digitalis among the drugs of this group for oral administration. Cushny has performed a great service to pharmacologists and practitioners, and the book deserves careful reading.

A Preliminary Report on the Treatment of Interstitial Keratitis. By R. Lindsay Rea, M.D., F.R.C.S., Ophthalmic Surgeon to West End Hospital for Nervous Diseases. Cloth. Price, 2 shillings 6 pence net. Pp. 32, with illustrations. London: H. K. Lewis & Co., 1925.

This report is based on ninety-one cases seen by the author in the various English hospitals over a period of several years. In this series he found the proportion of males to females to be in relation of 1 to 1.87 and the ages to vary from 5 to 49 years. Sixty-four of the seventy-two cases that were examined serologically gave a positive Wassermann reaction and five of the eight negative cases gave a positive colloidal gold test. The etiology was not discussed in the remainder of the cases of the series. The author did not find a single case in which it might be suggested that tuberculosis was the cause, contrary to the findings in other series of cases numerically greater. Local treatment consisted in the use of atropin ointment and, if the eye was not unduly irritated, 2 per cent. yellow mercuric oxid ointment. The local British product was mentioned specifically. Neoarsphenamin was used intravenously, an initial dosage of 0.12 gm. being increased a small amount each week for from ten to twelve weeks. Mercury was then prescribed, to be continued for about one year and in some of the older cases accompanied by iodid. In other words, the treatment advocated was the usual mild routine antisyphilitic treatment. The results were compared in terms of ultimate vision, the treated cases being compared with the untreated. The reports of the treated cases were extremely meager, as the vision was reported in only fourteen of the forty-seven cases. Without analyzing his figures, the author states that "comparison of these tables shows that the best results are obtained . . . by constitutional treatment." It is a nice booklet but unnecessary, for it does not add a thing to what is already commonly known.

Les rayons ultra-violets et associés en thérapeutique. Par Jean Saidman. Paper. Price, 65 francs. Pp. 580, with 194 illustrations. Paris: Gaston Doin, 1925.

Heretofore, information concerning the nature and action of ultraviolet rays and their therapeutic application has been scattered through various periodicals. This and the commercial propaganda carried on by manufacturers of ultraviolet apparatus have created a chaotic impression in the minds of physicians generally. In preparing this book, Dr. Saidman has sought to reestablish order by making information available, concerning not only the physical and photochemical characteristics of ultraviolet rays, but also their physiologic effects and their application to the treatment of disease. The book is divided into three parts, the first part dealing with the sources of ultraviolet rays; the second, with their physiologic action, and the third, with their therapeutic application. In the first part the author discusses the emission of ultraviolet rays by different substances, including the metals, the natural sources, and the various artificial sources. In discussing the latter, he gives a good account of the physical and other differences between the ultraviolet characteristics of the carbon arc lamp, as developed by Finsen, and of the mercury vapor lamp, including their advantages and disadvantages. This information is valuable, because it enables the reader to understand something of the controversy that has raged on this point. Reflectors, localizers, compressors and filters are likewise considered. There is an interesting chapter on the choice of a lamp, in which sound advice is given. The author warns that no reliance is to be placed on the claims of manufacturers, and that the choice must be based on the wave-length characteristics and on their adaptability to the effects desired. In the second part, the absorption of ultraviolet rays by air, by albumin and by tissues is discussed, as well as the photoelectric and chemical effects and the action of ultraviolet rays on bacteria. There is a chapter on the action of the ultraviolet rays on the skin, in which are described the various phases of actinic epidermitis, its symptoms and evolution, the effect of the actinic erythema on the general condition, the factors influencing the intensity of such erythema, and the influence of the erythema itself on the resistance of the skin. Separate sections are devoted to pigmentation, sensitization, and action on the blood, on the nervous system, on the eye, and on the deeper structures and organs. The third part is devoted to the technic of ultraviolet irradiation, both local and general; the instrumentation most suitable; the frequency of treatment; the measurement of ultraviolet rays; possible complications, and, finally, to a discussion of the different pathologic conditions in which ultraviolet rays are supposed to be useful. In criticism, it may be said that in the first chapter the nature of ultraviolet rays could have been described and explained more fully. Altogether, however, the book is a satisfactory one. The arrangement of the subject matter is logical. The experimental and clinical data are reviewed, and the author's opinions and conclusions, which are set off in italics, are clear. The book is well printed, well indexed, and contains a complete bibliography on the subject up to 1924. It constitutes a reliable work of reference for the research worker and for the physician who appreciates finding in such a work all the information available on the subject.

Die Individualität des Blutes in der Biologie, in der Klinik und in der gerichtlichen Medizin. Von Dr. Leone Lattes, Professor an der Universitat Modena. Paper. Price, 9.60 marks. Pp. 226, with 48 illustrations. Berlin: Julius Springer, 1925.

The first issue of this book in Italian appeared in 1923 and was received favorably. In the present edition the material has been revised and brought down to date; autoagglutination, complement binding iso-antibodies, the question of new iso-agglutinins, the heredity and the anthropologic significance of the blood groups are given expanded consideration. The references to the literature, which appear to be as complete as could well be expected, now number 700 in all, and especial pains have been taken to make them complete and correct. Blood groupage (isohemagglutination) is of interest in biology, anthropology, heredity and medicine, particularly surgery and medical jurisprudence, and the pertinent literature is scattered in periodicals representing all these departments of science. Lattes' book is the most comprehensive and the most satisfactory book on blood grouping. All the phases of the subject are presented thoroughly; a special chapter is given to the medicolegal use of blood grouping, and in an appendix to this chapter the translator, Fritz Schiff, discusses the method followed in Germany, which at present appears to be the only country in which the diagnosis of blood groups is used to throw light on questions of parentage, the individual source of blood spots, and similar problems for forensic purposes. The American work is given adequate consideration; the joint recommendation of the committee representing the American Association of Immunologists, the Society of American Bacteriologists, and the Association of Pathologists and Bacteriologists that the Jansky classification be adopted for universal use is cited with approval. The fact that in some places, as for instance the Mayo Clinic, a different scheme of classification is used is deprecated because it leads to difficulty in comparing the results of different workers and to misunderstanding in teaching and pratice.

ALLGEMEINE PATHOLOGIE. Von Dr. N. Ph. Tendeloo, Direktor des pathologischen Instituts der Reichuniversität Leiden. Second edition. Paper. Price, 66 marks. Pp. 1040, with 368 illustrations. Berlin: Julius Springer, 1925.

The training of the author for his task consists in part in service as assistant in pathologic anatomy followed by actual medical practice for eight years, when he became prosector and bacteriologist to the city hospital in Rotterdam and then professor in Leiden. The first edition of the work appeared in 1918 and before long demand arose for a new edition, which is now at hand. There are four parts: the first deals with general questions and conceptions, such as what is normal and abnormal, life and death, correlation and adaptation; the second part takes up general etiology and pathogenesis; the third part is devoted to local disturbances of nutrition, metabolism and function (hypertrophy, atrophy, degeneration, infiltration, inflammation, tumors); and the fourth part deals with general disturbances of nutrition, metabolism and function, and contains twelve chapters covering nearly 500 pages. This mere enumeration indicates the largeness of the scope of Tendeloo's General Pathology. The discussion is detailed, sound and scholarly, with possibly some tendency to diffuseness. The command of the literature seems remarkable and the list of the names of the authors cited in the text covers no less than twenty pages with three columns on each page; in addition, the most important basic works for each chapter are cited separately. The book will be a valuable and useful addition to the pathologic section of every medical library.

DIABETES, ITS TREATMENT BY INSULIN AND DIET. A Handbook for the Patient. By Orlando H. Petty, A.M., M.D., F.A.C.P., Professor of Diseases of Metabolism, Graduate School of Medicine, University of Pennsylvania, and William H. Stoner, A.M., M.D., F.A.C.P., Associate Professor of Biochemistry, Graduate School of Medicine, University of Pennsylvania. Second edition. Cloth. Price, $1.50. Pp. 133, with illustrations. Philadelphia: F. A. Davis Company, 1925.

Some good handbooks on diabetes have appeared recently; some have been insignificant. This one is both good and significant. The authors evidently give credit to the diabetic patient for having that understanding without which no handbook is of use. As a result the text, though plainly written, is real; the tables are decidedly helpful, and the recipes reliable.

SCHLAFMITTEL-THERAPIE. Von Dr. Albrecht Renner, Städtisches Krankenhaus Altona. Paper. Price, 4,50 marks. Pp. 125. Berlin: Julius Springer, 1925.

Modern chemical industry has almost hopelessly swamped the physician with a superabundance of hypnotics. To obtain the best effect from these agents, three factors have to be considered: the nature of the sleep disturbance, the nature of the diseased organism, and the nature of the hypnotic. A perusal of this scholarly treatise should enable the physician to fit the remedy to the case with as great a degree of scientific precision as our present knowledge permits.

Miscellany

MEMENTOES OF LAVOISIER

Notes on a Trip to Château de la Canière

GRAHAM LUSK
NEW YORK

I have elsewhere described my visit to M. de Chazelles, the great grandnephew of Lavoisier, at his apartment in Paris.[1] Since that publication, the old gentleman has passed away at an age well over 90 years. This summer I had the honor and pleasure of being most kindly received at the beautiful summer home of Madame de Chazelles at the château de la Canière, a few miles from Vichy and near Puy-de-Dôme at the beginning of the French Pyrenees. It was up Puy-de-Dôme, a mountain 4,800 feet above the sea level, that Blaise Pascal, in 1648, at the age of 25, caused a barometer to be carried and there demonstrated the diminution of the weight of the atmosphere.

When I was a student in Munich, Carl Voit told his hearers that he understood that the original respiration apparatus of Lavoisier was in a cellar in Paris and that, should he ever visit Paris, he would very much like to investigate the matter. He said that Lavoisier's technic was entirely unknown. This was about the time of the publication of Grimaux's "Lavoisier,"[2] which contained reproductions of two drawings by Madame Lavoisier showing the technic involved. These drawings picture Lavoisier himself actively experimenting and Madame Lavoisier sitting at a table, taking notes.

That part of the apparatus of Lavoisier now on exhibition at the Conservatoire des Arts et Métiers in Paris was evidently selected by chemists or physicists, and indeed I was told that I was the first physiologist to see the other collection of apparatus now housed in the château de la Canière. It seems that almost immediately after the execution of Lavoisier at the time of the French Revolution, his family recovered possession of his apparatus, his library and his original manuscripts. In witness of the tragedy is the broken lock of a beautiful morocco portfolio, which had been pried open by his accusers in their search for evidence against him.

It is related that the great chemist Dumas has read over the manuscripts. It may be that in this mass of papers is hidden a description of the method by which Lavoisier made the first measurements of "basal metabolism" on man and noted that this metabolism was increased by food, work and cold, for no physiologist has ever read them. Lavoisier was executed before he was able to publish his methods in full.

Professor Le Goff, the French friend through whom I was introduced to Madame de Chazelles, and I reverently examined each bit of apparatus. We could compare the apparatus with the pictures drawn by Madame Lavoisier. We found the glass globes, the tall cylinders with petcocks at one end. There was a cork valve in a copper cylinder, indicating that a light air valve might have been constructed for use in the oblong box shown nearest the face mask in the second drawing of Madame Lavoisier (Grimaux, p. 128). Diligent search, however, failed to reveal this particular oblong box.

The surprise of the visit was the discovery of the original face mask used on the subject Seguin. The face mask was of copper and was fitted with two glass eyes similar to those used in diving bells. The mask continued so as fully to cover the nose. For some unknown reason, the nose of the mask is now perforated with holes. The edge of the mask was perforated for binding on the head. Probably the tube into which Seguin breathed was introduced through either leather or rubber, which fell down from the nose piece of the mask and was fitted around the neck and around the head of the subject. We saw a large rubber bulb that had been used by Lavoisier, so the material must have been known to him.

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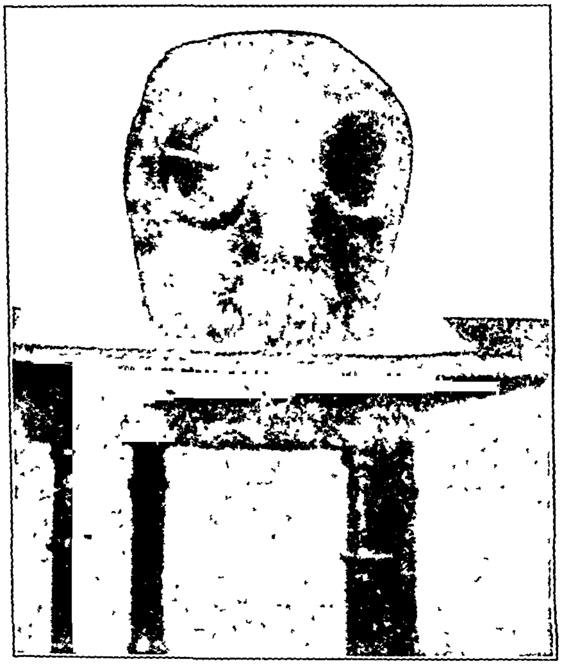
[1] Lusk, Graham: Some Influences of French Science on Medicine, Proc. Inst. Med. Chicago 3:98, 1921.

[2] Grimaux, E.: Lavoisier, Paris, 1888.

Now it curiously happened that a few weeks after seeing this mask I was at Davos, and Prof. A. Loewy, the head of the alpine laboratory there, showed me a new, as yet undescribed respiration mask covering the whole head, which was almost the exact duplicate of what Professor Le Goff and I a few weeks earlier had concluded must have been the device employed by Lavoisier 140 years ago.

Other interesting objects that we saw were a simple laboratory chair with an elongated arm, made perhaps for convenience in taking the pulse rate, and a watch that not only registered the time by the twelve hour half day, but also simultaneously showed the time according to a new ten hour day. The Lavoisier library contained presentation copies from Laplace and many another treasure. And there were three small portraits of Count Rumford (Benjamin Thompson), a great friend of Lavoisier.



Copper mask used by Lavoisier in his estimation of the respiratory metabolism of man.

A bust of Lavoisier by Houdin and a very large rosewood desk used by Lavoisier were in the main hall of the château A magnificent Empire bedroom suite given to Madame Lavoisier on the occasion of her unfortunate second marriage to Count Rumford indicated the splendor surrounding the lives of the aristocratic families of that time.

Among many drawings by Madame Lavoisier is one on which is written in the hand of her teacher David, "Très bien, très bien, très bien." The picture of Lavoisier and his wife painted by the great master David, the only portrait of him in existence, a treasure of surpassing worth, is now in an American home. A kindly Frenchman wrote me that he was glad to hear that it was in the hands of "your good countryman, Mr. J. Rockefeller, so devoted to the medical researches." To those who know what Mr. Rockefeller has done for the restoration of the Cathedral of Rheims and of the palace of Versailles, for the benefit of man now and in centuries to come, it will be gratifying to know that this great picture is held in trust by him.

Cornell University Medical College.

Medicolegal

Barred Evidence Against Roentgenologist—of Blood Test

(Unger v. Grimsley (Miss.), 103 So. R. 341)

The Supreme Court of Mississippi, Division A, says that plaintiff Grimsley brought this action to recover damages for a burn alleged to have been caused by the defendant's negligence and unskilfulness in applying roentgen rays to the plaintiff's hip. During the cross-examination of the defendant, and over his objections, he was required to testify in regard to an alleged roentgen-ray burn inflicted by him on another person two years after the alleged burn of the plaintiff. It was shown that the second burn was inflicted under entirely different circumstances, and with a different machine. The court thinks that testimony was inadmissible and highly prejudicial. The testimony in this case was in sharp conflict as to the number of exposures, and the length of those exposures, and the court thinks that on the testimony in the record the case was one for the jury; but for the error in admitting testimony of a subsequent burn of another person, the judgment of the court below for $2,000 in favor of the plaintiff must be reversed, and the cause remanded

As to the contention of the defendant that the testimony of the director of the state hygienic laboratory, as to the contents of certain records of his office showing the result of a certain blood test, was admissible as a public record, under provisions of the code, the supreme court expresses no opinion, since it was not shown that the proffered testimony pertained to a blood specimen of the plaintiff, and consequently it was for that reason inadmissible

Insufficient Allowance for Medical Treatment

(Baker v. Rundquist et al. (Minn), 203 N. W. R. 452)

The Supreme Court of Minnesota says that the plaintiff while in the employ of the defendant sustained lacerated wounds on the right side of his face affecting his right eye. He was entitled to compensation. First aid was given by a local physician for ten days No examination was made of the internal nasal region. Later the plaintiff consulted a specialist, who treated him. The referee allowed $9 for first aid. No further sum was allowed for medical attendance. Disability compensation, under the workmen's compensation act, was allowed for five weeks and three days. An examination of the evidence leads the court to the conclusion that the plaintiff was entitled to medical services additional to his first aid attention. He said that he had internal trouble in the nasal region. The physician who gave first aid treatment was not a specialist and gave treatment for the superficial wounds only. The specialist gave treatment, and he thought it was needed. It might be that some of the work done was not required by the injury. In any event the workman was entitled to exploratory treatment, and perhaps to all that he received. The charges made by the specialist might be high, but this court is not concerned with them now. Furthermore, as a matter of law the plaintiff's disability did not cease at the end of five weeks and three days. It was not long continued, but it did not cease so soon. The amount of the award should be reconsidered. It could not be large. The situation invited a settlement rather than further litigation.

Weakened Resistance an Injury—Pneumonoconiosis

(Kozaliski v. Collins Co. et al. (Conn.), 128 Atl R. 288)

The Supreme Court of Errors of Connecticut, in holding that there was no error in a judgment affirming an award for the plaintiff, under the workmen's compensation act of that state, says that the compensation commissioner found that the plaintiff, who had been employed as a grinder, had received a personal injury consisting of pneumonoconiosis, which had developed into a mixed infection of a tuberculous, staphylococcic and streptococcic nature. The compensation act provides that if an injury arises out of and in the course of the employment, it shall be no bar to a claim for compensation that it cannot be traced to a definite occurrence which can be located in point of time and place; also, that the word "injury" shall be construed to include any disease which is due to causes peculiar to the occupation and which is not of a contagious, communicable or mental nature. The defendants contended that the plaintiff having grinder's consumption, and that as that is a form of tuberculosis and tuberculosis is a contagious or communicable disease, therefore it was not compensable under the statute. But the injury that developed into grinder's consumption was a weakened resistance to infection called pneumonoconiosis. This was an injury not contagious or communicable; hence the statute did not bar a recovery, when it became a compensable injury by infection causing incapacity. The character of the plaintiff's work as a grinder injured him by producing a condition of the lungs which offered weakened resistance to staphylococcus infection, to streptococcus infection, or to infection from the tubercle bacilli. His injury was the condition of weakened resistance to infection, and when such a condition of weakened resistance yields to infection and makes the workman unfit to work, the injury has become a compensable one. The consequent effects of the weakened resistance to infection in this case, namely, the infection producing grinder's consumption, was not the injury compensated for; it was the weakened resistance to infection which was the injury compensated for; the consequences of that condition when infection occurred was deemed a part of the weakened resistance to infection. The injury occurred when the condition of weakened resistance arose. When the injury (the weakened resistance to infection) arises in the course of and out of the employment, then every consequence that flows from it likewise arises out of the employment.

No Prohibition Against Issuing Prescriptions

(Aiton v. United States (U. S.), 3 Fed. R. (2d Series), 992)

The United States Circuit Court of Appeals, Ninth Circuit, in reversing a judgment of conviction of defendant Aiton and in doing it with instructions to sustain a demurrer to the indictment and quash the latter, says that it need consider only the one count of the indictment on which the conviction was had. That count charged that the defendant, who was a practicing physician and duly registered with the collector of internal revenue, did unlawfully issue and write and deliver a prescription to a named person for 56 grains of morphin sulphate, not in good faith for meeting the needs of said person and not to effect a cure of him in the course of professional practice only, said person being a habitual user of and addicted to the use of narcotic drugs, nor to treat said person then and there suffering from an incurable or chronic disease, in the course of his professional practice only, but, on the contrary, with the intent and purpose to dispense, distribute, barter and sell such narcotic drugs for the purpose of catering to and satisfying the cravings of said person for said drug. The indictment stated on its face that it was based on Section 1 of the Act of Dec. 17, 1914 (the Harrison Narcotic Act), but the government conceded that the reference should have been to Section 2. However, it would be as difficult to sustain the indictment under the latter section as under the former. Section 2 only prohibits the sale, barter, exchange, giving away, dispensing or distribution of drugs, except in certain cases not material here. There is no prohibition in that section or elsewhere in the act against issuing, writing or delivering prescriptions by a physician, regardless of the intent of the physician or the purpose for which the drugs are to be used.

It was to be inferred from the language of the indictment that it was based on the decisions in *United States* v. *Doremus*, 249 U. S. 86, 39 Sup. Ct. 214, and kindred cases, in which indictments were sustained by the supreme court. But it will be found on examination that in every such case, except where a conspiracy was charged, the indictment charged a sale or other distribution of drugs, and that in the conspiracy cases the charge was a conspiracy to sell or distribute drugs, not a conspiracy to issue, write or deliver prescriptions. For these reasons the count of the indictment under consideration charged no crime, and the demurrer should have been sustained.

"Practice of Medicine and Surgery" by Chiropractor

(State v. Morrison (W. Va.), 127 S. E. R. 75)

The Supreme Court of Appeals of West Virginia, in affirming a judgment of conviction of the defendant for practicing medicine and surgery as defined by Section 8a, Chapter 150, in the 1923 code of that state, without first having obtained a state license to do so, says that the weight of authority is to the effect that one who practices the chiropractic art or science comes within the provisions of a statute regulating the practice of medicine. Said Section 8a provides that the term "practice of medicine and surgery" as used by the West Virginia statute shall be construed to be the "treatment of any human ailment or infirmity by any method"; and that "to open an office for such purpose or to announce to the public in any way a readiness to treat the sick or afflicted, shall be deemed to engage in the practice of medicine and surgery within the meaning of this act." One who opens an office and announces to the public in any way that he is ready to treat the sick and afflicted, and has actually treated cases of paralysis, constipation, rheumatism, neuritis, sick headache, kidney trouble, lumbago, liver trouble, and divers other diseases by adjustment of the segments of the spinal column according to the chiropractic method of treating human ailments and infirmities, this court holds is "practicing medicine and surgery" as defined by said section.

The scope of the definition of the practice of medicine and surgery in Section 8a is too broad, its terms too explicit, and the intention is too plain to allow it to be modified and restricted by the former legislation. The mere fact that a school of medicine is not specifically mentioned does not in itself evidence an intention of the legislature to exclude it from the operation of the statute, if from a consideration of all its provisions the contrary clearly appears. The legislature cannot be expected to anticipate the founding of new methods of healing. It has by this statute evidenced its intention to regulate the practice of all medicine and surgery.

Nor does the court agree with the defendant's contention that, if the statute be construed to require him to pass an examination on the science of medicine, drugs and materia medica, as recognized and taught in Class A medical schools, or on the methods or practices peculiar to surgery as therein taught in order that he might lawfully practice his method of treatment of human ailments and diseases, then the statute would be unconstitutional and void as depriving him of the pursuit of a lawful calling as a means of acquiring property and obtaining happiness and safety. The statute does not contravene any of the rights of the defendant guaranteed to him by the West Virginia and the federal constitutions. It is undoubtedly true that the privilege of engaging in the practice of medicine is a valuable property right protected by constitutional guarantees. But the preservation of the public health by the sovereign power is paramount to the exercise of the private privilege by the individual, and consequently the state has the inherent right by means of its police power to impose such reasonable restrictions on the practice of medicine as are deemed necessary to attain the end in view, the preservation of the public health.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 20-24. Dr. Luther C. Peter, Chestnut and 20th Streets, Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 21-23. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Radiology and Physiotherapy, Chicago, Oct. 19-22. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Neb., Secretary.

American College of Surgeons, Philadelphia, Oct. 26-30. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Public Health Association, St. Louis, Oct. 19-22. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Central Neuropsychiatric Association, Ann Arbor, Oct. 23-24. Dr. Karl A [illegible] nic, Topeka, Kan., Secretary.

Central [illegible] November 6-7. Dr. H. T. Price, [illegible] Secretary.

District of Columbia, Medical Society of, Washington, D. C., Dec. 2. Dr. C. B. Conklin, 500 Medical Science Bldg., Washington, D. C., Sec'y.

Radiological Society of North America, Cleveland, Dec. 7-11. Dr. Robert J. May, St. Luke's Hospital, Cleveland, Secretary.

Southern Medical Association, Dallas, Texas, November 9-12. Mr. C. P. Loranz, Empire Bldg., Birmingham, Ala., Secretary.

Current Medical Literature

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

30: 291-452 (Sept.) 1925

*Lowered Basal Metabolism in Postinfectious States and in Diseases Characterized by Slow Pulse Rate. B. Schick and P. Cohen, New York.—p. 291.
*Energy Metabolism of Premature and Undersized Infants. M. E. Marsh and J. R. Murlin, Rochester, N. Y.—p. 310.
*Nitrituria. R. M. Greenthal, Milwaukee.—p. 321.
Variability in Weight for Height in Children of School Age. H. K. Faber, San Francisco.—p. 328.
*Diabetes Mellitus in Infant Aged Eight Months Treated with Insulin. J. C. Schippers, Amsterdam, Holland.—p. 336.
*Malnutrition in Infants with Cleft Palate; New External Obturator. J. A. Foote, Washington, D. C.—p. 343.
Massive Collapse of Lung in Boy Aged Ten Years. I. A. Abt, Chicago. —p. 347.
Growth of Heart. L. R. DeBuys and E. C. Samuel, New Orleans.—p. 355.
*Nitrogen and Mineral Balances in Infants Receiving Cow's and Goat's Milk. A. L. Daniels and G. Stearns, Iowa City, Iowa.—p. 359.
Diphtheria: Review of Literature for 1924. T. T. Crooks, Chicago.—p. 367.

Low Basal Metabolism in Postinfectious States.—Schick and Cohen assert that many patients with acute infections in their postinfectious state have a low basal metabolism. This low metabolism usually lasts for a few days, in some cases for a few weeks. The usual curve of the basal metabolism in the postinfectious state begins with a low figure, rising to normal in about one week. Two patients with meningeal conditions had a low basal metabolism for weeks, coincident with a low pulse. In one case, the basal metabolism and the pulse rate rose to normal simultaneously. Usually there is a good correlation between the pulse and metabolism. The authors believe that a slow pulse is a good clue to the finding of a low metabolism, especially if the heart is of normal size. In the cerebral diseases in which extraneous factors have the least influence on the pulse rate, a slow pulse rate and a low basal metabolism were found in two reported cases and also in one case of a protracted post-pneumonic bradycardia. The rise of metabolism and the increase of the pulse rate occurred together. The authors believe that the slow pulse at postinfectious states of certain brain diseases and of icterus is caused by a low basal metabolism and not by a stimulation of the vagus, at least in most instances. A theory is outlined which attempts to explain the low basal metabolism in these conditions.

Energy Metabolism of Premature Infants.—Energy metabolism has been determined by Marsh and Murlin in eighty-two observational periods on twenty-one premature and undersized infants, including five pairs of twins. The average basal respiratory quotient was low (0.74) through the fifth day, rose to 0.79 on the sixth day but never above this figure through the ninth day; whereas the quotient for a child in good nutritive condition, at least after the first week, should be about 0.85. The basal metabolism of these twenty-one infants averages 6.48 calories per hour, or 26.25 calories per square meter (Lissauer) and 2.04 calories per kilogram per hour. When the basal metabolism per square meter is averaged according to days of age there is a fluctuation during the first week, the lowest value coming on the seventh day with a higher value on the eight and ninth days. Each day the metabolism is definitely lower than for the value obtained for normal babies born at term. Increases in heat production with activity varies from 2.5 per cent. with slight restlessness, to 40.3 per cent., when the child cried 39.0 per cent. of the time. In a limited number of periods and all on infants one month, or less, premature, the observation made previously for full-term babies; that is, crying 1 per cent. of the time increases the metabolism 1 per cent., seems to hold fairly well. An increase of 42.1 gm. of food increased the metabolism 5.19 calories per square meter per hour, or 21.3 per cent.

Nitrituria.—Greenthal has found a positive nitrite reaction in freshly passed urine at times in about 50 per cent. of cases of pyuria due to nitrate-reducing organisms. A positive reaction is valuable as an aid to diagnosis, but a negative reaction has no significance. The failure of the nitrite test in these cases is due chiefly to a lack of nitrate in the urine. A modification of the Griess-Ilosvay test for nitrituria is presented.

Fatal Diabetes in Infant.—Notwithstanding temporary improvement in every respect under insulin treatment, Schippers' patient died in coma at the age of 25 months.

External Obturator for Nostrils in Cleft Palate.—Foote stops the nostrils with a simple strip of dental rubber dam about 2 inches wide and 4 inches long, to which are attached tapes at each side in the longest diameter. This is placed over the infant's nose, and the tapes are tied so that the rubber is stretched with sufficient tightness to block off the nostrils, the lower end of the rubber dam lying over the lip and the nipple. This obturator effectually excludes air.

Nitrogen and Mineral Balances in Infants.—A comparative study of the calcium, phosphorus and nitrogen balances has been made by Daniels and Stearns in infants receiving cow's and goat's milk feedings, respectively. Milk from two goats, having a somewhat different composition, was tested separately. The urinary phosphates in all infants receiving goat's milk was higher than during the periods when they were receiving cow's milk, even though the phosphorus ingested (in two cases) was no higher than in the corresponding periods when they were receiving cow's milk. The calcium and phosphorus balances during the goat's milk periods did not indicate that the inorganic moiety of the goat's milk was superior to cow's milk. Nor did the ratio of phosphorus to calcium retained by infants receiving goat's milk suggest that this is better than cow's milk. On goat's milk all infants retained considerably less nitrogen (from 17 to 25 per cent in one series and from 42 to 44 per cent. in another) than during the corresponding period, when they were receiving cow's milk.

American Journal of Psychiatry, Baltimore

5: 1-170 (July) 1925

Peculiarity of Thought in Schizophrenia. H. S. Sullivan, Baltimore—p. 21.
Familial Preadolescent Mental Deterioration and Blindness: Histology of One Case. A. E. Taft and J. P. Munroe, Philadelphia.—p. 87.
Studies of Gastric Secretion and Motility in Mental Patients. C. B. Farr, C. W. Lueders and E. D. Bond, Richmond, Va.—p. 94.
Relation of Social Work to Psychiatry. R. P. Truitt, New York.—p. 103.
Psychiatry of Hippocrates. J. R. Oliver, Baltimore.—p. 107.
Industrial Neurosis. M. Osnato.—p. 117.
Conversion Hysteria in Child. P. R. Lehrman, New York.—p. 133.
Mental Disorders of Childhood. C. W. Burr, Philadelphia.—p. 145.
Relation of Intelligence to Etiology of Drug Addiction. L. Kolb.—p. 163.

American Review of Tuberculosis, Baltimore

11: 471-550 (Aug.) 1925

Extrapleural Thoracoplasty for Pulmonary Tuberculosis. H. Lilienthal, New York.—p. 479.
Action of Light on Living Matter. B. O'Brien, Perrysburg, N. Y.—p. 486.
*Newer Conception of Tuberculid. N. Tobias, St. Louis.—p. 492.
*Clinical Study of Skin Hypersensitiveness to Tuberculin. P. M. Andrus, London, Ont.—p. 499.
*Dreyer's Antigen. C. H. Boissevain, Colorado Springs.—p. 507.
*Tuberculo-Complement-Fixation and Inhibitive Tests. A. H. W. Caulfeild, W. H. Hodge, M. F. MacLennan, F. LaRush, W. E. Ogden, H. MacIntyre, G. C. Anglin and C. Cohen, Toronto, Can.—p. 508.

Tuberculoid.—Tobias favors the term tuberculoid, advocated by Darier, for the condition known as tuberculid as being a more appropriate designation.

Skin Hypersensitiveness to Tuberculin.—For four and a half years Andrus has employed tuberculin intracutaneously more or less as a routine measure. This study is based on an analysis of 1,728 tests on an even 1,000 adult admissions. The majority received tests shortly after admission, and many were tested at varying intervals during residence and at discharge. Of these patients, fifty-eight were considered to have nonactive pulmonary tuberculosis, and not to require treatment; 114 were diagnosed nontuberculous, although the majority of them had chronic pulmonary or bronchial affections, and the remainder were considered to have active pulmonary or bronchial affections, and to be in need of treatment. In this series the presence of the general tuberculin reaction (as indicated by fever) has no constant bearing on the degree of tuberculin skin hypersensitiveness. The degree of tuberculin skin hypersensitiveness offers no clue to differentiate active from nonactive pulmonary tuberculosis in a clinical way. In the absence of definite tuberculous involvement, negative tuberculin skin tests would tend to throw the balance of evidence in favor of a nontuberculous diagnosis. In tuberculosis diagnostic problems the presence of well marked tuberculin skin reactions would tend to throw the balance of evidence in favor of a tuberculous diagnosis. The earlier and more favorable types of tuberculosis tend to the higher levels of tuberculin skin hypersensitiveness, and the more advanced and less favorable types to the lower levels. No characteristic changes in degree of tuberculin skin hypersensitiveness occur during the favorable progress of tuberculous disease. Changes occur one way or the other in about 40 per cent. of cases relatively early and then tend to maintain a constant level. The level of tuberculin skin hypersensitiveness rises in 50 per cent. of tuberculous individuals at the time of relapse. The data as offered by degree of, or changes in, tuberculin skin hypersensitiveness are of small practical value in the clinical estimation of a given case.

Dreyer's Antigen.—Some observations made by Boissevain on the defatted *B. tuberculosis* antigen of Dreyer are reported. His observations do not justify any inferences regarding the effect of the antigen on chronic experimental tuberculosis. Two patients with far advanced pulmonary tuberculosis have, at their own request, been treated with the same antigen. The treatment, continued now for about eight months, has not shown any notable effects, either favorable or unfavorable.

Tuberculo-Complement-Fixation and Inhibitive Tests. — The results obtained by Caulfeild, Hodge, MacLennan, LaRush, Ogden, MacIntyre, Anglin and Cohen by carrying out two serologic tests periodically during several years' observation on "normals," contacts and cases of tuberculous and nontuberculous disease have been classified and given in percentages. From these an approximate diagnostic value can be drawn. Among the normals there was serologic evidence for suspecting the presence of tuberculous lesions in twelve, and this was subsequently confirmed in two by at least two other methods of investigation. Among the contacts there were similar grounds for suspecting that the exposure had resulted in an implantation of the bacilli in over 40 per cent. Among the cases the tests were helpful in estimating the probability of tuberculosis as a correct diagnosis, and among the definitely tuberculous in vizualizing the progress frequently before there were appreciable clinical evidences of a change in the course of the disease. The tests will not give a satisfactory short cut (laboratory) diagnosis for or against tuberculosis. If this is demanded the results will be disappointing or misleading because (*a*) the tuberculin complement fixation reaction is negative in a considerable percentage of the tuberculous; (*b*) because it is at least weakly positive in a large number who are evidently not tuberculous; (*c*) because the inhibitive test can consistently be normal in a large percentage of the definitely tuberculous, and (*d*) because an occasional case will give a positive inhibitive test in which there will be no grounds for suspecting clinical tuberculosis.

Archives of Dermatology and Syphilology, Chicago

12: 325-464 (Sept.) 1925

XLIII. "Erythema Group" of Skin Diseases. M. F. Engman and R. S. Weiss, St. Louis.—p. 325.

*Wassermann Test. XV. Effect of Bismuth on Wassermann Reaction in Patients Unresponsive to Arsphenamin. D. L. Belding, Boston.—p. 334.

*Sigma Reaction for Syphilis. H. E. Smiley, Providence, R. I.—p. 345.

*Cause of Nitritoid Crisis Following Intravenous Injection of Arsenicals. E. F. Müller, New York.—p. 349.

Leukoderma Following Dermatitis Venenata (Rhus Toxicodendron). L. McCarthy and L. K. McCafferty, New York.—p. 356.

*Universal Psoriasis Complicated by Tumor-Like Formations; Case. O. L. Levin, New York.—p. 360.

*Lichenoid Sarcoid; Case. C. S. Wright, Philadelphia.—p. 374.

Studies on Hair; Hypertrichosis. C. H. Danforth, Stanford University, Calif.—p. 380.

Effect of Bismuth on Wassermann Reaction.—The effect of bismuth on the Wassermann antibody in the so-called Wassermann-fast patients, who do not respond serologically to arsenic and mercury is discussed by Belding. Bismuth treatment lowers the strength of the Wassermann antibody not only in patients who are responsive to arsphenamin, but also in those who are unresponsive. The average reduction in the series studied by Belding composed largely of arsphenamin-resistant patients, was 39 per cent. which probably represents the minimum effect of bismuth. Nine tenths of the reduction was obtained four weeks after the end of treatment, and the remaining one tenth by the sixteenth week. In patients with old syphilis, bismuth does not give any slower serologic action than the arsphenamins. The reduction appears permanent, at least it was permanent for the six months the patients were under observation. The few patients who showed a relapse received less than the standard dosage. Variable factors such as the strength of the reaction, the clinical stage and duration of the disease and the total dosage, which usually render serologic interpretations of doubtful value, exerted a negligible influence in this particular series and permitted direct comparison between patients responsive and unresponsive to arsphenamin. However, the extent of the reduction of the Wassermann antibody corresponded to the intensity of treatment. All the Wassermann-fast patients in this series had shown no change in the strength of the Wassermann antibody under treatment with arsphenamin. One half of these patients reacted to bismuth as compared with five sixths of the patients who were responsive to arsphenamin. Also the quantitative reduction of the Wassermann antibody in these patients was one half that of the arsphenamin responsive patients. After the first course of treatment the total amount of arsphenamin and mercury given had no apparent influence on the action of bismuth.

Sigma Reaction for Syphilis.—Smiley regards the sigma reaction as offering a reliable index in following the effect of a course of treatment for syphilis. The validity of the sigma reaction is apparently not affected by treatment. Much more information can be gained from a course of sigma readings than from a similar course of Wassermann readings.

Nitritoid Crisis Following Intravenous Injection of Arsenicals.—It was observed by Müller that the patients who reacted to arsphenamin with unusual symptoms of a nitritoid crisis and those who showed equally unusual symptoms after injections of silver arsphenamin, i. e., a decrease in the number of leukocytes in the blood with or without visible manifestations, will also react positively to the Widal test without showing any apparent sign of hepatic involvement. Müller is convinced that the unusual reaction in the blood following injections of silver arsphenamin into patients who also show symptoms of a nitritoid crisis after administration of arsphenamin is not due to the drug, but rather to a pathologic reactivity of the involuntary nervous system. This abnormal reactivity, latent in the body before injection and manifested by an unusual reaction of the body itself, is due to a disturbance of the involuntary nervous system.

Universal Psoriasis and Tumor-Like Lesions.—Report is made by Levin of a case of universal psoriasis complicated by the presence of what the author considers a hitherto undescribed feature of tumor-like lesions. The tumors showed a pathology which differed in no way from that observed in a typical case of psoriasis; and the microscopic findings of the tissue from the general eruption and the infiltrated strands on the thighs were similar to those seen in the tumor growths, differing only in degree of hypertrophy of the rete pegs, the infiltration and the intensity of the edema. The tumor growths were even more edematous than was shown under the microscope, and it was concluded, therefore, that the tissue must have contracted considerably by means of the chemicals and heat during the preparation of the slides. The strandlike, elevated infiltrations of firm and doughy consistency on the thighs, and the involvement of the lips and nails were also unusual features. The characteristic clinical lesions and tumors both disappeared subsequent to autoserotherapy, and on cessation of this form of treatment, the lesions recurred. Autohemotherapy caused a slight involution of the lesions, thus modifying the eruption, but no radical change was produced by this form of treatment.

Lichenoid Sarcoid.—The case reported by Wright presented a most unusual form of sarcoid; it appeared first as areas of loss of pigment in which lichenoid plaques developed The condition was associated with pulmonary tuberculosis, which apparently developed four years after the appearance of the cutaneous manifestations.

Archives of Neurology and Psychiatry, Chicago

14: 289-434 (Sept) 1925

*Thalamus in Physiology and Pathology of Mind F X Dercum, Philadelphia —p 289
Cerebrospinal Fluid from Different Loci J B Ayer and H C Solomon, Boston.—p 303
*Reduction of Normal Cerebrospinal Fluid Pressure by Intravenous Administration of Hypertonic Solutions H S Howe, New York —p 315
Cerebrospinal Fluid in Lead Poisoning C V. Weller and A D Christensen, Ann Arbor, Mich —p 327
*Intracranial Dermoid Cysts; Case C W Rand, Los Angeles —p 346
Significance of Jacksonian Epilepsy in Focal Diagnosis of Cerebral Lesions W. B Cadwalader, Philadelphia —p 358
Porencephaly E R. LeCount and C B Semerak, Chicago —p 365
Weir Mitchell Rest Cure Forty Years Ago and Today. T H Weisenburg, Philadelphia —p 384
*Cerebrospinal Fluid Sugar. F. Fremont Smith and M E Dailey, Boston —p 390
Glioma of Bulb and Pons; Four Cases P Bassoe and C W Apfelbach, Chicago —p 396

Relation of Thalamus to Mind.—In summing up his consideration of the rôle of the thalamus in the physiology and pathology of mind, Dercum points out that while in the interaction of the thalamus and cortex, the cortex is normally dominant, the thalamus controls the gateways of admission and in diseased states may hold the cortex at its mercy. While the nuclear aggregations of the thalamus are undoubtedly influenced by the internal secretions, the thalamus in its turn contains centers which profoundly influence metabolism These centers are situated in the floor of the hypothalamus and are probably in close relation with the visceral nuclear aggregations and have to do with the reactions of the latter on each other That the resulting emissive streams should in turn influence the activities of the viscera, and among these especially the glands concerned in anabolic and catabolic changes, is, perhaps, what should naturally be expected.

Effect of Hypertonic Solutions Administered Intravenously on Cerebrospinal Fluid Pressure.—Experiments have been made by Howe to determine the effect of the intravenous administration of various hypertonic solutions on the cerebrospinal fluid pressure of cats Concentrated solutions of sodium bicarbonate, sodium sulphate, sodium citrate, sodium chlorid, sodium bromid, calcium lactate, calcium chlorid, magnesium sulphate and dextrose have been used A few observations with a combination of electrolytes have also been made in the proportions given in the Ringer-Locke and Tyrode solutions Sodium bromid, calcium lactate, calcium chlorid and magnesium sulphate were found to be too toxic Sodium citrate, sodium tartrate and sodium bicarbonate were relatively ineffective Sodium sulphate, sodium chlorid, concentrated Ringer-Locke solution and concentrated Tyrode solutions and dextrose produced satisfactory depressions Sodium sulphate was nontoxic at first but has been reported by Weed and McKibben to have caused death later, and so is unsafe for clinical use Sodium chlorid produced the most pronounced decrease in intracranial pressure of any substance used, but it is toxic unless administered very slowly Furthermore, as it is later mobilized in the tissues producing a secondary wave of edema, as shown by Fay, it is considered unfit for general clinical administration The same objections apply to concentrated Ringer-Locke and Tyrode solutions although they are somewhat less toxic Dextrose is the only substance of this group which is nontoxic and produces a satisfactory fall in intracranial pressure

Intracranial Dermoid Cysts—Rand reports a case of intracranial dermoid cyst The wall resembled true dermis containing hair follicles, sweat glands and stratified squamous epithelium The central mass was filled with debris composed of desquamated cells, among which were scattered fine hairs and cholesterin crystals It was attached to the dura in the left temporal region and should probably come under the classification of "meningeal cholesteatoma" suggested by Horrax The outcome of the case was disappointing The cyst became infected after its first opening, and its ultimate complete removal was followed by local meningitis and brain abscess, to which the patient succumbed

Determination of Spinal Fluid Sugar.—Fremont-Smith and Dailey insist that spinal fluid sugar should be determined on patients fasting, preferably over night, and compared with coincident blood sugar

Archives of Ophthalmology, New York

54: 423 529 (Sept) 1925

Obscure Affection of Conjunctiva Resembling Cases of Parinaud's Syndrome R E Wright, Madras —p 423
Case of Orbital Neuronomia M Cohen, New York —p 425
Acute Dacryo-adenitis Caused by Focal Infection M L Foster, New Rochelle, N Y —p 430
"Keratitis Punctata Superficialis," Case A W Stirling, Atlanta, Ga —p 432
Genesis of Myopia G Levinsohn, Berlin —p 434
Nonsurgical Treatment of Heterophoria in Ametropia H W Wooten, New York —p 440
Percentage Evaluation of Macular Vision A C Snell and S Sterling —p 443
Syphilis and Iritis H D Bruns, New Orleans —p 462
Reviving Operation of Couching G L Johnson, Durban, S A —p 466
Ophthalmic Disorders of Endocrine Origin in Women O R Lourie, Boston —p 469
Neurofibromatosis with Buphthalmus, Case A Wiener, New York —p 481

Arkansas Medical Society Journal, Little Rock

22: 81 100 (Sept) 1925

Functions of Present Day Practitioner and His Duty in Application of Present Day Scientific Medicine H Thibault, Scott —p 81
Exceptional Child W. M Brewer, Little Rock.—p 84
Relations of Specialists to the General Practitioner. H J G Koobs, Rogers —p 85
Case of Complete Transposition of Viscera J S Wilson, Lake Village —p 89

Atlantic Medical Journal, Harrisburg, Pa.

28: 813 924 (Sept) 1925

Retrospect of Medical Development in Pennsylvania J W Ellenberger and G L Laverty, Harrisburg —p 811
Cancer of Rectosigmoid Tract D B Pfeiffer, Philadelphia —p 814
Congenital Syphilis A Dattner, Wilkes Barre —p 818
Treatment of Nonsuppurative Deafness J A Babbitt, Philadelphia —p 821
*Chronic Otorrhea A J Wagers, Philadelphia —p 827
Chronic Bronchitis T T Sheppard, Pittsburgh.—p 833
*Sporotrichosis, Case from Pennsylvania F C Knowles, E F Corson and H B Decker, Philadelphia —p 835

Mercurochrome Treatment of Chronic Otorrhea.—In the treatment of these cases Wagers uses mercurochrome, 5 per cent in 50 per cent alcohol, dropped into the canal and middle ear, the head resting on the side The canal is tightly plugged with cotton to prevent the outflow of the solution, which stains the skin. Of the forty-five ears treated, twenty-three, or 51 1 per cent, became dry after an average of 6 5 applications Sixteen cases were recorded as improved; six were not. Eight definitely dry ears were secured in a series of 162

Sporotrichosis in Pennsylvania.—Six cases of sporotrichosis have been observed in Pennsylvania in which the fungus has been cultured and isolated The seventh case is reported by Knowles, Corson and Decker

Boston Medical and Surgical Journal

193: 535 582 (Sept 17) 1925

Psychotherapy C M Campbell, Boston —p 535
Frequency of Bilateral Renal Tuberculosis J D Barney and S G Jones, Boston —p 540
Thoracoplasty in Advanced Pulmonary Tuberculosis W Whittenmore, Boston —p 542
*Inevitable Damage Consequent on Goiter F A. Coller, Ann Arbor, Mich —p 545
Intestinal Obstruction in Infant Due to Mesenteric Cyst with Volvulus G D Cutler and J C Merriam, Boston —p 550

*Milton Experience with Antirabies Inoculation of Dogs. P. R. Withington, Milton, and G. H. Bigelow, Boston.—p. 552.
Wecil's Disease; Sporadic Case. O. O'Neill and E. Ottenheimer, Williamantic, Conn.—p. 555.
VIII: Convalescent Work in U. S. Army. J. Bryant, Boston.—p. 557.

Goiter.—Endemic goiter is composed of colloid and adenomatous elements. In early life the colloid element predominates; after 25, the adenoma predominates. These changes are progressive and constant and in time, the length of which is well established, will cause the appearance of symptoms. Coller shows that frank hyperthyroidism caused by endemic goiter will be found to increase in frequency from the latter part of the third decade to the fifth and sixth decades when at least a third of the cases will have it. Definite cardiovascular damage will appear in at least a quarter of the cases with hyperthyroidism and in a smaller, but appreciable, number of cases with normal metabolic rates. Endemic goiter is a precancerous lesion with an incidence of malignancy of at least 3 per cent. Endemic goiter causes many mental changes of a minor, but disabling, nature and in those with a psychopathic inheritance may excite the appearances of some mental abnormalities. The progressive nature of the goiter pathology and the appearance of symptoms makes it possible to attack the goiter at a time when medication has ceased to be effective and when the changes begin to menace the health of the patient. The surgical removal of the adenomatous goiter at this time will prevent the appearance of the great morbidity otherwise to be expected. The removal of adenomatous goiters should be advised on diagnosis in individuals after the age of 25.

Management of Rabies Outbreak.—In consequence of five cases of canine rabies developing in Milton, Mass., during the first few weeks of 1925, the board of health carefully reviewed the whole question of the prevention of this disease. It at first offered voluntary inoculation of dogs at which only about 18 per cent. of the dogs were immunized. Then in the presence of growing popular interest, choice of restraint, muzzling, or inoculation was ordered. There was some difference of opinion as to whether under the existing law muzzling had to be offered as an alternative but there was no doubt of its utter futility. In the end about 41 per cent. of the dogs were immunized. Efforts to enforce restraint met with the customary indifferent results. As quarantine of any common communicable disease in a given community is in general no better than public opinion demands, so the quarantine of dogs to which public opinion was largely indifferent was indifferently enforced. This is the conventional situation and suggests that more and more dependence must be placed on active immunization to protect communities against the ravages of rabies. Withington and Bigelow are of the opinion that it is practical to require inoculation as a prerequisite to licensing dogs, as advocated in New Jersey.

Florida Medical Association Journal, St. Augustine and Jacksonville

12: 59-92 (Sept.) 1925

Roentgen-Ray Diagnosis of Gallbladder Disease; Cholecyatography After Intravenous Dye Injection. J. A. Beals, Jacksonville.—p. 59.
Diagnosis of Disease of Gallbladder. T. Z. Cason, Jacksonville.—p. 61.
Postoperative Care of Gallbladder Diseases. R. O. Lyell, Miami.—p. 63.
Practical Management of Hypertension Syndrome. A. H. Bunce, Atlanta, Ga.—p. 65.
Some Reasons Why We Should Affiliate with Our County and State Medical Associations. J. C. Davis, Jr., Quincy.—p. 69.

Indiana State Medical Association Journal, Ft. Wayne

18: 311-374 (Sept.) 1925

Treatment of Cardiac Decompensation. J. Wynn, Indianapolis.—p. 311.
Psychopath. R. M. Funkhouser, Indianapolis.—p. 317.

Johns Hopkins Hospital Bulletin, Baltimore

37: 157-216 (Sept.) 1925

Medical Treatment of Pyloric Stenosis of Infants. W. C. Davison, Baltimore.—p. 157.
*Sporothrix Infection of Large Intestine and Finger Nails. T. R. Boggs and H. Fried, Baltimore.—p. 164.
Comparison of Kahn with Wassermann Test. M. H. Faupel, Philadelphia.—p. 170.
*Intravenous Injections of Fluid and Repeated Blood Volume Determination. H. P. Smith, Baltimore.—p. 177.
Hippocrates. J. R. Oliver, Baltimore.—p. 189.
*Right-Sided Diaphragmatic Hernia: Case Occurring with Intrathoracic Neoplasm Compressing Right Phrenic Nerve. J. C. White, Baltimore.—p. 203.

Sporothrix Infection of Large Intestine.—Boggs and Fried relate the occurrence of an acute and severe dysentery associated with the presence of a sporothrix-like organism in the stools in great numbers, and the clearing up of the condition coincidently with the destruction of the organisms by an antiseptic dye, thus seemingly justifying the tentative association of these as cause and effect. This is further strengthened by the fact that the organism belongs evidently to a group which has furnished pathogenic strains affecting the lungs, skin and lymph glands in numerous reported cases from widely scattered regions of the world. Additional interest is given this case from the association of a mycotic infection of the finger-nails for years preceding the acute intestinal infection with the same organism. It is conceivable, at least, that the patient had taken spores into her intestinal tract for years as a result of biting her nails, and that some incidental factor may have determined the implantation of the organism on the intestinal mucosa. This factor may have been a change in the intestinal resistance, through traumatic or toxic agencies, or an alteration in the virulence in the organism itself.

Blood Changes Resulting from Intravenous Glucose Injections.—Certain blood changes resulting from the injection of large quantities of glucose solution are described by Smith. The blood volume changes indicated by the dye method agree quite well with changes indicated by alterations in hematocrit and hemoglobin. Reasons are given for the failure of Lamson and Rosenthal to obtain concordant results in somewhat similar infusion experiments.

Diaphragmatic Hernia.—White cites a case of right-sided diaphragmatic hernia containing the liver, gallbladder, hepatic flexure of the colon and omentum. The case is complicated by a chronic ulcer in the esophagus, chronic empyema, acute pericarditis and a peculiar type of malignant tumor. From the history and necropsy findings a theoretic explanation is advanced for the formation of the hernia, but the exact classification and point of origin of the tumor could not be determined.

Journal of Biological Chemistry, Baltimore

65: 1-278 (Aug.) 1925

Glycolysis in Vitro. S. Morgulis and O. Barkus, Omaha.—p. 1.
*Rate of Elimination of Ingested Sugars in Phlorhizin Diabetes. H. J. Deuel, Jr., and W. H. Chambers, New York.—p. 7.
*Animal Calorimetry. XXX. Metabolism of Glycerol in Phlorhizin Diabetes. W. H. Chambers and H. J. Deuel, Jr., New York.—p. 21.
Lactone Formation from Mono- and Dicarboxylic Sugar Acids. P. A. Levene and H. S. Simms, New York.—p. 31.
Configurational Relationships Between β-Hydroxy Acids and α-Hydroxy Acids and Between the Latter and Secondary Alcohols. P. A. Levene and H. L. Haller, New York.—p. 49.
*Blood Sugar Time Curves Following Ingestion of Dihydroxyacetone. I. M. Rabinowitch, Montreal.—p. 55.
Nitrogen Distribution and Percentages of Some Amino-Acids in Muscle of Shrimp, Peneus Setiferus (L.). D. B. Jones, O. Moeller and C. E. F. Gersdorff, Washington, D. C.—p. 59.
*Iron in Nutrition. I. Nutritional Anemia on Whole Milk Diets and Utilization or Inorganic Iron in Hemoglobin Building. W. B. Hart, H. Steenbock, C. A. Elvehjem and J. Waddell, Madison, Wis.—p. 67.
*Nitrogenous Constituents of Juice of Alfalfa Plant. IV. Betaine Fraction. H. B. Vickery, New Haven, Conn.—p. 81.
Id. V. Basic Lead Acetate Precipitate. H. B. Vickery and C. G. Vinson, New Haven, Conn.—p. 91.
*Experimental Rickets. XXVI. Diet Composed of Purified Foodstuffs. E. V. McCollum, N. Simmonds, J. E. Becker and P. G. Shipley, Baltimore.—p. 97.
*Comparison of Concentrations of Inorganic Substances in Serum and Spinal Fluid. G. Hamilton, Boston.—p. 101.
*Extract Obtained from External Bovine Parathyroid Glands Capable of Inducing Hypercalcemia in Normal and Thyreoparathyroprivic Dogs. A. M. Hjort, S. C. Robison and F. H. Tendick, Detroit.—p. 117.
*Direct Precipitation of Calcium in Cows' Milk. C. S. Rothwell, New Haven, Conn.—p. 129.
Temperature Coefficients of Enzymic Activity and Heat Destruction of Pancreatic and Malt Amylases. D. H. Cook, New York.—p. 135.
Optical Activity of Cystine. J. C. Andrews, Philadelphia.—p. 147.
Oxidation of Cystine. J. C. Andrews, Philadelphia.—p. 161.
*Metabolism of Women. I. Variations in Fasting Blood Sugar Level and in Sugar Tolerance in Relation to Menstrual Cycle. R. Okey and E. I. Robb, Berkeley, Calif.—p. 165.
Metabolism of Sulphur. IX. Effect of Repeated Administration of Small Amounts of Cystine. H. B. Lewis, Ann Arbor, Mich.—p. 187.

*Loss of Bases in Diuresis and Its Effect on Alkali Reserve of Blood. B. M. Hendrix and D. B. Calvin, Galveston, Texas.—p. 197.
Catalytically Active and Inactive Forms of Ferric Oxid. L. A. Welo and O. Baudisch, New York.—p. 215.
Determination of Nitrate Nitrogen in Plants. R. C. Burrell and T. G. Phillips, Columbus, Ohio.—p. 229.
Possible Relationship of Arachidonic Acid to Saturated Fatty Acids in Fatty Acid Metabolism. L. G. Wesson, Baltimore.—p. 235.
Sulphur in Proteins. II. Effect of Mild Alkaline Hydrolysis on Hair. W. F. Hoffman, St. Paul.—p. 251.
Effect of Bacterial Flora on Biologic Test for Vitamin B. V. G. Heller, C. H. McElroy and B. Garlock, Stillwater, Okla.—p. 255.
Maintenance of Carbonic Acid Equilibrium in Body; Influence of Respiration and Kidney Function on CO_2, $H+$, HCO_3 and CO_2 Concentrations in Plasma. C. D. Murray and A. B. Hastings, New York.—p. 265.

Elimination of Sugars in Phlorhizin Diabetes.—A study made by Deuel and Chambers of the hourly elimination of extra glucose, fructose and galactose in fasting phlorhizinized dogs showed rates practically identical. Lactose, on the other hand, was excreted much more slowly, and less than 50 per cent. of extra glucose arising therefrom was recovered at the end of twelve hours. The glucose originating from fructose represents a 100 per cent. conversion from the carbohydrate ingested and was almost completely eliminated in five hours. The conversion of galactose to glucose has been shown to be nearly quantitative, 98 per cent. of the theoretical amount being excreted as extra glucose. A sparing action on nitrogen metabolism has been noted in each case in which there was increased glucose excretion irrespective of its source, although the glucose was not utilized and was quantitatively excreted.

Metabolism of Glycerol in Phlorhizin Diabetes.—A practically complete conversion of glycerol to glucose was noted by Chambers and Deuel in two phlorhizinized dogs. After the ingestion of 8.53 gm. of glycerol, 96.9 and 98.4 per cent., respectively, of extra glucose were recovered in the urine. A third dog yielded 55 per cent. conversion after ingestion and 70 per cent. after subcutaneous injection of glycerol. A decrease in the respiratory quotient from 0.703 to 0.678 after giving glycerol, indicates that there was no general oxidation of the ingested glycerol, which has a respiratory quotient of 0.86, nor of the glucose into which it was converted. The reduction in the respiratory quotient from 0.703 to 0.678 may be exactly accounted as due to the oxidation of the 2 atoms of hydrogen liberated in the reaction glycerol → ½ glucose. In the rate of excretion and the sparing of protein metabolism the reaction of glycerol was similar to that of the monosaccharids.

Blood Sugar Time Curves Following Ingestion of Dihydroxyacetone.—It has been shown by Rabinowitch that the diabetic is apparently able to tolerate dihydroxyacetone more readily than glucose. This substance has now been tested out in a number of cases of diabetes. When dihydroxyactone is administered by mouth in proper dosage it has an insulin-like action in that it lowers the blood sugar. It is thus not only more readily tolerated than glucose by the diabetic, but actually has some influence on the metabolism of the carbohydrates already present in the body. Rabinowitch has substituted dihydroxyacetone for doses of insulin without, as previously, deducting a corresponding quantity of other carbohydrates from the diet.

Nutritional Anemia on Whole Milk Diet.—Rabbits limited to a whole milk (cow's) sodium citrate diet, Hart, Steenbock, Elvehjem and Waddell found will develop a nutritional anemia characterized by low hemoglobin and erythrocyte contents of the blood. Inorganic iron added to the basal ration will not per se correct this anemia. Inorganic iron in the presence of fresh cabbage or an alcoholic extract of desiccated cabbage or an alcoholic extract of yellow corn meal will prevent or cure such an anemia. These extracts are free from iron. Chlorophyll, free from iron, will also, in the presence of added inorganic iron, correct such an anemia as is induced by a whole milk-sodium citrate diet. The relation of these substances to vitamin E and to certain recent investigations on the nutritive properties of milk are discussed.

Betaine Fraction in Alfalfa Juice.—A fraction containing the quarternary bases has been obtained by Vickery from the juice of the alfalfa plant. This fraction contained 8.48 per cent. of the nitrogen of the protein-free juice of the plant (the "alfalfa filtrate") and nearly 81 per cent. of this nitrogen has been accounted for as stachydrine, chlorin, trimethylamine and betaine.

Experimental Rickets; Pure Foodstuff Diet.—In these experiments McCollum and his associates made use of a diet composed principally of purified foodstuffs for use with the "line test" for vitamin D studies. The formulas of two diets are given.

Concentration of Inorganic Substances in Serum and Spinal Fluid.—In a series of seventeen cases of epilepsy Hamilton found normal concentrations of chlorid, bicarbonate, inorganic phosphorus, total fixed base and calcium in serum and spinal fluid. The correlation between the chlorids in the serum and the chlorids in the spinal fluid was not very marked. A close relationship was found between the bicarbonates in the two fluids. The correlation between the values for calcium was fairly good and was somewhat less close between the values for inorganic phosphorus. Monovalent base showed about the same low degree of correlation as the chlorids and probably for the same reason.

Parathyroid Hormone Relieves Tetany.—Hjort, Robison and Tendick extracted a hormone from fresh bovine parathyroid glands by aqueous or alcoholic hydrochloric acid extractions which when given parenterally to dogs possesses the property of relieving tetany and inducing hypercalcemia.

Determination of Calcium in Milk.—Rothwell has devised a method of determining the calcium in cow's milk by direct precipitation with ammonium oxalate, without removal of protein.

Metabolism of Women.—On the basis of a total of more than 300 determinations of "before breakfast" blood sugar, covering forty-nine menstrual periods in twenty-six normal women, Okey and Robb state that there seems to be no ground for the conclusion that there is a consistant cyclic variation in the fasting blood sugar level in women. The average values observed during menstruation are slightly higher than those for the intermenstrual period. However, there are a greater number, not only of high values, but also of low values, during the menstrual period than at any other time. Hence, it is believed that, in making single determinations of blood sugar for purposes of clinical diagnosis, the time of the menstrual period should, in so far as possible, be avoided. This conclusion is borne out by a limited number (approximately fifty) of additional observations on subjects not to be rated as strictly normal physically.

Loss of Bases in Diuresis.—It has been demonstrated by Hendrix and Calvin that in diuresis due to sodium nitrate, sodium chlorid, sodium sulphate and urea, there is a loss of base through the kidney over and above that lost normally. Together with this loss of base in the urine, there is a marked fall in the alkali reserve. The loss of base is believed to be due to a failure of reabsorption from the tubules, since the tubules are flooded and overtaxed, and cannot be supposed to function as efficiently as normally in the retention of the basic ions. The effect of sodium nitrate diuresis on the alkali reserve is transient, passing off quickly, while the effect of sodium chlorid diuresis is more prolonged.

Journal of Experimental Medicine, Baltimore

42: 275-429 (Sept. 1) 1925

*Physiologic Ontogeny. A. Chicken Embryos. IV. Negative Acceleration of Growth with Age as Demonstrated by Tissue Cultures. A. C. Cohn and H. A. Murray, New York.—p. 275.
*Id. V. Rate of Heart Beat During Development of Chicken Embryos. A. E. Cohn, New York.—p. 291.
Id. VI. Differentiation in Chicken Embryo Heart from Point of View of Stimulus Production. A. E. Cohn, New York.—p. 299.
Antigenic Substance of Bacterial Cell. H. Zinsser and T. Tamiya, Boston.—p. 311.
*Etiology of Jagziekte. I. Primary Lesions. E. V. Cowdry, New York.—p. 323.
Id. II. Origin of Epithelial Proliferations and Subsequent Changes. E. V. Cowdry, New York.—p. 335.
*Immunologic Reactions of Isolated Carbohydrate and Protein of Pneumococcus. O. T. Avery and H. J. Morgan, New York.—p. 347.
*Antigenic Properties of Solutions of Pneumococcus. O. T. Avery and J. M. Neill, New York.—p. 355.
*Immunologic Relationship of Cell Constituents of Pneumococcus. O. T. Avery and M. Heidelberger, New York.—p. 367.

Immunologic Relationships of Streptococcus Viridans and Certain of Its Chemical Fractions. I. Serologic Reactions Obtained with Antibacterial Serum. R. C. Lancefield, New York.—p. 377.
Id. II. Serologic Reactions Obtained with Antinucleoprotein Serums. R. C. Lancefield.—p. 397.
*Compensatory Hypertrophy of Thymus in Rat. J. Marmorston-Gottesman and H. L. Jaffe, New York.—p. 413.
Bacteriophage of D'Herelle. II. Effect of Alcohol. J. J. Bronfenbrenner and C. Korb, New York.—p. 419.

Physiologic Ontogeny.—Observations made by Cohn and Murray on tissue cultures of heart muscle from chicken embryos indicate that, in general, the growth rate of the individual cells decreases with age. The negative acceleration of growth is greatest at the beginning of life as in the intact embryo. The latent period is greatest near the end of the incubation period, thus demonstrating that the factors determining the initiation of growth and those determining the extent of growth are not similar.

Rate of Heart Beat During Development.—This study by Cohn has made possible the presentation of a curve which shows distinctly that changes take place in the rate of the *heart beat during the development of the chick embryo.*

Etiology of Jagziekte.—Jagziektc is a specific chronic catarrhal pneumonia of sheep which is peculiar to South Africa. The name is derived from the Dutch *Jagt*, to drive, and *ziekte*, a sickness, the combination of which is intended to indicate that the initial symptoms become first noticeable when the animals are driven for some distance. It is thought to be contagious and causes severe economic losses. An interesting feature of the disease consists of an extensive overgrowth of the pulmonary epithelium, but it is not known whether this proliferation constitutes the primary lesion nor has its tumor-like structure been studied. Cowdry describes the primary changes.

Immunologic Study of Pneumococcus.—Avery and Morgan assert that the isolated carbohydrate of pneumococcus is nonantigenic in the sense of stimulating antibody formation. The isolated protein of pneumococcus is antigenic: it induces the formation of antibodies which react with the nucleoprotein fraction of organisms of homologous and heterologous types. The antiprotein serums do not agglutinate type-specific strains of pneumococcus, or react with the carbohydrate derived from them.

Antigenic Properties of Pneumococcus.—Avery and Neill state that intact pneumococci, possessing specific antigenic powers unimpaired by cultural or other procedures, give rise to agglutinins for organisms of the homologous type and to precipitins for the type-specific carbohydrate derived from them. Solutions of pneumococci free of all formed elements, but containing the carbohydrate and protein of the original cell, fail to stimulate the formation of type-specific antibodies. Serums prepared in this manner do not react with the carbohydrate constituent of the cell and do not agglutinate organisms of the homologous type. The loss of this antigenic function is related to changes incurred during dissolution of the bacterial cell. Solutions of the cellular substances of pneumococcus, although lacking the specific antigen of the whole cell, induce the formation of antibodies reactive with pneumococcus protein regardless of the type from which the latter is derived.

Immunologic Relationship of Pneumococcus.—The general immunologic significance of the intact pneumococcus cell and of its protein and carbohydrate components are discussed by *Avery and Heidelberger.*

Compensatory Hypertrophy of Thymus.—Evidence of uncomplicated hypertrophy of the thymus was obtained by Gottesman and Jaffe by removing one lobe and studying the enlargement of the remaining lobe. The results clearly indicate that such hypertrophy takes place in young animals. They emphasize the functional importance of this gland before puberty, since the compensatory enlargement does not take place after puberty. The results further indicate that with the onset of involution there is a marked or almost total decline in the function of the gland, in spite of the fact that anatomically the thymus may persist to old age. With the appearance of a stimulus for regeneration, as suprarenalectomy, the involuted gland takes on functional activity.

Journal of Nervous and Mental Diseases, New York

62: 225-336 (Sept.) 1925

Pathology of Dementia Praecox. N. D. C. Lewis, Washington, D. C. —p. 225.
*Double Effect of Calcium on Vegetative Nervous System. E. Barath, Budapest, Hungary.—p. 261.
*Cerebrospinal Fluid in General System and Metabolic Diseases as in Nephritis, Diabetes, etc. B. J. Alpers, Philadelphia.—p. 265.
Case of Cervicomedullary Tumor. J. Favill, D. E. Faxon and D. A. Palmer, Chicago.—p. 279.

Effect of Calcium on Vegetative Nervous System.—Barath maintains that in contradiction to the results of experiments made on surviving organs, the effect of calcium on men is manifested in a double reaction: in the initial period there are strongly expressed symptoms of vagus excitement of short duration and these are followed by a less strongly expressed period of sympathetic excitement with longer duration increase of the blood sugar and blood pressure, sometimes epinephrin mydriasis, etc. The effect of calcium is an amphotrop effect, that is to say, an effect which manifests itself on both parts of the vegetative nervous system.

Cerebrospinal Fluid in Systemic and Metabolic Diseases.—*A series of cerebrospinal fluids collected from the literature* and from hospital reports form the basis of Alpers' report. In diabetes mellitus, sixty-five spinal fluids were studied. In 60 per cent. of the cases the cell content was normal, and in 40 per cent. either moderately or definitely increased. Most of the cases with an increased cell count, however, showed the presence of some complication, such as gangrene, tuberculosis, or pneumonia. The spinal fluid pressure was normal, and the protein content showed a slight increase in about 45 per cent. of the cases. *Forty-one spinal fluids from cases* of chronic nephritis without the presence of a uremia showed clear and colorless fluids in all cases. Most of these were cases of nephritis with hypertension. In 83 per cent. the cell count was normal, and in 17 per cent. it was definitely increased. In 30 per cent. a slight to a moderate increase in the protein content was recorded. The Wassermann, when done, was always negative. In uremia the spinal fluid changes are different from those in nephritis. In "pure" uremia the pressure is always elevated, the urea content is increased. In cases of "associated" or "secondary" uremia the amount and pressure of the *spinal fluid are definitely* increased, the cells are usually normal but may be increased, the chlorids are increased in amount, the albumen content is qualitatively normal and the urea content is elevated. Cases with a content of over 0.2 per cent. are rapidly fatal, and those with a content of from 0.1 to 0.2 per cent. show a severe retention and a fatal termination if not cared for. In jaundice the spinal fluid is occasionally yellow, probably in from 15 to 20 per cent. of the cases. Sixty-nine cases of gastro-enteritis showed no abnormalities in the spinal fluids. Cases of chronic endocarditis, chronic myocarditis, and subacute bacterial endocarditis showed no deviation from the normal in their spinal fluid findings. In twenty-one cases of lobar pneumonia without signs of a meningismus an increase in the cell count was noted in 13 per cent. of the cases. In eighteen cases of bronchopneumonia the cells increased in 33 per cent. of the cases. No other significant findings were noted. Twenty-five cases of pneumonia with signs of meningismus showed normal spinal fluid findings. In typhoid fever a hyperglycorrhachia had been reported, and also a decrease in chlorids. Fifty per cent. of the cases of pulmonary tuberculosis showed an increased cell content, but no other findings. Endocrine disorders were studied but no conclusions could be drawn from the few cases available for study.

Journal of Radiology, Omaha

6: 303-346 (Aug.) 1925

Do Roentgen Rays Cause an Indirect Stimulation? G. Holzknecht, Vienna, Austria.—p. 303.
High Voltage Roentgen-Ray Therapy in Gynecologic Practice. R. E. Fricke, Baltimore.—p. 304.
Mediastinal and Lung Tuberculosis. R. B. Breuer, Norton, Kan.—p. 307.
Skin Malignancies: Diagnosis and Treatment. L. Hollander, Pittsburgh. —p. 311.
Possibilities of Physiotherapy in Prevention and Treatment of Paralysis Following Anterior Poliomyelitis. E. B. Kessler, St. Joseph, Mo.—p. 318.

Direct Effect of Radium Irradiation on Leukocytes R. G. Spurling and J. S. Lawrence, Boston —p 322
Dermoid Cyst of Pleural Cavity. F. J. Schleier, Omaha —p 324.

Medical Journal and Record, New York

122: 309 368 (Sept. 16) 1925

Thoracic Pain. Relation to Visceral and Spinal Disease. G Swetlow, New York —p 309.
Nonspecific Protein Therapy in Migraine, Epilepsy, Asthma and Hay-Fever. R H Spangler, Philadelphia —p 313
Tryparsamide in Syphilis. W C. Menninger, Topeka, Kan.—p 318
Cases in Which Test for Pancreatic Efficiency Has Been of Clinical Assistance A. Bassler and J. R. Lutz, New York.—p. 321.
Office Gynecology. S. B Schenk, Brooklyn —p 324.
Stasis, the Destroyer. A. C. Jordan, London —p. 328
Lethargic Encephalitis. W. M. Crofton, Dublin, Ireland —p 331.
Medicolegal and Sociologic Aspects of Epidemic Encephalitis C S Potts, Philadelphia —p 335.
*Etiology of Epileptiform Convulsions J. M. Nielsen, Battle Creek, Mich —p 338
*Epilepsy, Type of Heredofamilial Degeneration or Abiotrophy. L B Alford, St Louis —p 340
Anxiety Neuroses and Allied Conditions. R. B Tracy, Butte, Mont. —p 342.
Teaching Mental Hygiene to Medical Students and Practitioners T A. Williams, Washington, D. C.—p 345
Some Uses of Insulin J. F. Black, New York —p. 347.
Brief Survey of Evolution of Therapeutics C. G. Cumston, Geneva, Switzerland —p. 349.

Etiology of Epileptiform Convulsions.—A series of 210 cases of epileptiform convulsions has been studied by Nielsen with a view of determining the etiologic factors. All points not comparable with recognized normal standards have been carefully compared with a series of 200 consecutive nonneurotic cases. No age is exempt. The curve of age incidence of the first convulsion shows three peaks, 20, from 30 to 35 and 50. The curve of symptomatic convulsion cases runs remarkably parallel to those of the idiopathic types. The male sex predominates in the proportion of sixty to forty in idiopathic cases and sixty-six to thirty-four in the symptomatic cases The latter is apparently due to the greater incidence of arteriosclerosis, toxemias, etc, in males. Constipation is a marked predisposing as well as exciting factor or else epilepsy produces constipation. The basal metabolism in this short series is somewhat lower in epileptics than normal. Migraine headaches coexist with epilepsy in about 12 per cent. of cases. The finding of a small sella, thickened posterior clinoid processes or both occurs in about 39 per cent. of the cases *of idiopathic convulsions and in about 28 per cent.* of symptomatic convulsion cases Blood sugar, blood pressure, hemoglobin content and differential blood count do not vary from the normal cases in epileptiform convulsions. Since the symptomatic cases show an age curve similar to that of the idiopathics hereditary taint, constipation, sella turcica pathology and possibly lowered basal metabolism, nearly as great as that shown by the idiopathics, it would appear that the symptomatics are potential epileptics "waiting for" an exciting cause If this be the case, the "cause" of a symptomatic convulsion is merely the exciting factor in the case.

Epilepsy: Type of Heredofamilial Degeneration.—The contention is advanced by Alford that a great deal may be learned about epilepsy by considering it in relation to other nervous affections that seem to be of similar nature. The affections most similar to epilepsy appear to be the heredofamilial *degenerations or abiotrophies, examples of which are the* muscular atrophies and dystrophies, paralysis agitans, Huntington's chorea, progressive cerebral diplegia, myoclonus, dementia praecox, and other conditions. In these conditions the pathologic process is a degeneration of cells and fibers which arises from inborn weakness. In each condition a characteristic set of cells and fibers is involved. In epilepsy the convulsions are assumed to be representative of a type of extrapyramidal motor involvement and to be in series with tremor, chorea, athetosis and incoordination which are types of extrapyramidal disturbance found in others of the group of abiotrophies. The mental aspects of epilepsy are similarly considered to be comparable to the mental disturbances found *in Huntington's chorea, cerebral diplegia and dementia* praecox. The fundamental causative influence is heredity, although other processes may act in conjunction with heredity as it is now understood.

Military Surgeon, Washington, D. C.

57: 225 336 (Sept) 1925

Historical Parallels at Coblenz F R. Keefer.—p 225
Use of Fish in Control of Yellow Fever in Peru H Hanson and L. H. Dunn.—p 232.
Maxillofacial Centers F Lemaitre —p 242
Some Medical Problems of Day H J Nichols —p 256
Flying Sense V T Scott —p 265
Study of Methods of Disinfection of Eating Utensils in U. S Army, S A Moulton —p 268
Preparation of Endo's Medium N. MacL Harris —p 280
Basic Qualifications of Noncommissioned Officer. G. L McKinney. —p 286

Nebraska State Medical Journal, Norfolk

10: 325 364 (Sept) 1925

Indications for Open Operations in Fracture of Femur. A F Jonas, Omaha —p 325
Fracture of Tibia J W Duncan, Omaha —p 326
Fracture of Patella C H Waters, Omaha —p 327
Fractures of Elbow R D Schrock, Omaha —p 330.
Carpal Scaphoid Fractures J A Weinberg, Omaha —p 332
When to Operate in Fractures of Skull J J Keegan, Omaha —p 333.
What Roentgenogram Indicates A F Tyler, Omaha —p 335
Modern Aspects of Nutrition V F Levine, Omaha —p 336
Some Problems in Diagnosis A L Cooper, Scottsbluff —p 342
Acute Appendicitis in Children A W Anderson, West Point —p 347.
Pyuria F B Young Gering —p 35
Congenital Hypertrophic Stenosis of Pylorus J A Henske, Omaha —p 353
Traumatic Laceration of Lung Without Injury to Parietal Pleura Case E A Connolly, Omaha —p 356

New Jersey Medical Society Journal, Orange

22: 323 366 (Sept) 1925

Specific Test for Syphilis Present Status of Kolmer's Complement Fixation Test for Syphilis as Established by a Critical Comparison with Numerous Other Methods R A Kilduffe, Atlantic City, N J —p 323
Plastic Surgery J E Sheehan, New York —p 338
Dr Coit and His Ideals E G Wherby, Newark —p 341
Treatment of Rhus Dermatitis with Poison Ivy Extract. R O Clock, Pearl Rive, N Y —p 344

New York State Journal of Medicine, New York

25: 889 920 (Sept) 1925

Prostatectomy Factors of Safety P Syms, New York —p 889
Inhalation versus Regional Anesthesia for Prostatectomy O S Lowsley, and H E Rogers, New York —p 893
Present Status of Insulin Therapy E P Joslin, Boston —p 901

Northwest Medicine, Seattle

24: 407 468 (Sept) 1925

Psychic Factors in General Medical Diagnosis L F Barker, Baltimore —p 407.
Toxic Goiters of Adolescent Age. J E Else and B Peden, Portland Ore —p. 413
Exophthalmic Goiter, Etiology and Mental Symptoms R B Tracy, Butte, Mont —p 416
Thyroid Surgery. J. H. Garberson, Miles City, Mont —p 419
Clinical Study of Thyroid Disorders F R Menne, Portland, Ore —p 421
Hypothyroidism W. A. Taylor, Ellensburg, Wash —p 422
Incidence of Rickets in Breast Fed Infant G J Mohr, Seattle, Wash —p 430
Porcupine Quill in Throat; Removal by Direct Laryngoscopy. J G Parsons, Lewistown, Mont —p 431.

Rhode Island Medical Journal, Providence

8: 141 160 (Sept.) 1925

Heart, Management in Hyperthyroidism C C Sturgis, Boston —p. 141.
Diphtheria Immunization in Providence C L Seamon, Providence —p 146
Health Adult—To Longer Life C. H Mayo, Rochester, Minn —p 147.

Tennessee State Medical Association Journal, Nashville

18: 61 88 (July) 1925

Liver Function R Caldwell, Nashville —p 61.
Osteomyelitis H. G Hill, Memphis —p 65.

Wisconsin Medical Journal, Milwaukee

24: 173-230 (Sept) 1925

Surgical Diathermy in Treatment of Malignant Lesions of Buccal Cavity and of Skin F B McMahon, Milwaukee —p 173
How to Better Our Cancer Results W E. Ground, Superior.—p 178
More Hopeful View of Cancer with Special Reference to Gastric Cancer. K. W. Doege, Marshfield —p. 185
Precancerous Lesions and Early Carcinomata, Fulguration Treatment. T. W. Nuzom, Janesville —p. 191.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: *367-402* (Aug. 29) 1925

*Treatment of Asthma. W. L. Brown.—p. 367.
Eye Injuries and Interstitial Keratitis. W. T. H. Spicer.—p. 373.
Id. W. B. I. Pollock.—p. 375.
Visual Hallucinations in Sane People. A. W. Ormond.—p. 376.
Phlyctenular Conjunctivitis and Keratitis: Causes and Prevention. N. B. Harman.—p. 379.
Instrument for Recording Light Minimum and Light Difference. R. W. Henry.—p. 381.
Case of Perforating Wound of Eye, with Retention of Piece of Glass. R. Colley.—p. 382.
*Spheroidal Cell Carcinoma of Ovary in Child of Eight. O. Potter.—p. 383.
Recognition of Latent Jaundice During Treatment with Arsenobenzol Compounds. H. W. F. Williams.—p. 384.

2: 403-460 (Sept. 5) 1925

Choice of Medicine as Career. C. Buttar.—p. 403.
Public Health. H. Kenwood.—p. 404.

Treatment of Asthma.—Brown summarizes the treatment of asthma thus: Consider the psychic aspects of the case; remove sources of peripheral irritation, especially in the upper air passages; employ chest development exercises, especially in the young asthmatic, whose respiratory intake is usually poor; desensitize where practicable; restore the balance in favor of the sympathetic, and attend to the general hygiene.

Carcinoma of Ovary in Child.—Potter's patient, aged 8, had complained for four days of pain in the lower abdomen; it was constant and severe, increasing very much during defecation. For two days the lower abdomen had been seen to be swollen. A tumor was visible rising above the pubes to just below the umbilicus. It was firm to the touch and slightly tender. On rectal examination a mass was palpable in the pouch of Douglas. A tentative diagnosis of appendix abscess was made. At operation, a solid tumor was found, growing from the left ovary but extending to and enveloping the right. It was all encapsulated except the right extremity, which was fungating and becoming adherent to coils of small intestine. The tumor, with both ovaries and tubes, was removed. No other focus of growth was seen. On microscopic examination the tumor proved to be a spheroidal cell carcinoma. Twelve days after the operation enlarged glands appeared in the right groin and two days later in the left groin. A month later the child was readmitted with a tumor similar to the original one, and nodules, one of which was fungating through the wound in the abdominal wall. She died ten days later. Permission could not be obtained for a postmortem examination.

Calcutta Medical Journal

20: 463-510 (June) 1925

Treatment of Contracted and Ankylosed Joints. W. L. Harnett.—p. 463.
Tuberculous Cervical Glands. I. Bose.—p. 476.
Id. II. N. R. S. Gupta.—p. 480.
Nonspecific Therapy. A. Roy.—p. 483.

Indian Medical Gazette, Calcutta

60: 351-402 (Aug.) 1925

Treatment of Fractures of Elbow Joint. H. Halliday.—p. 351.
*Pharmacology and Therapeutics of Adhatoda Vasica (Basak). R. N. Chopra and S. Ghosh.—p. 354.
*Mercurochrome 220 in Treatment of Malaria. A. N. Kingsbury and K. Kanagarayer.—p. 355.
Cataract Extraction, 17,000 Operations. J. M. MacPhail.—p. 357.
*Excision of Pineal Body of Monkey Under Intra-Arterial Anesthesia. J. P. Arland.—p. 360.
Treatment of Hemorrhoids by Strangulation and Snipping. D. R. Kehar.—p. 362.
Midwife in India. C. C. Murison.—p. 362.
Public Health Policy. W. C. Cross.—p. 366.
Application of Extension in Cases of Simple Fracture. P. C. Dutta.—p. 373.
Acriflavine in Otorrhea. S. N. Consul.—p. 374.
Retention of Urine Due to Hematocolpos. M. Alam.—p. 374.
Unusual Form of Pseudo Hernia. A. B. de Castro.—p. 375.
*Interesting Sign in Retrocecal Appendicitis. A. G. Tresidder.—p. 376.
Case of Obstructed Labor by Intra-Uterine Tumor. M. N. S. Chetti.—p. 376.

Adhatoda Vasica.—Chemical analysis of *Adhatoda vasica* shows the presence of two active principles: (*a*) an alkaloid, vasicine, and (*b*) traces of a volatile principle of the nature of an essential oil. Vasicine has no marked action on the alimentary canal or on the circulation. It produces slight but persistent bronchodilation in experimental animals and this effect is considerably increased after administration of atropin. Clinically, a fluid extract prepared from the leaves has well marked expectorant properties and relieves bronchial spasm.

Mercurochrome-220 in Treatment of Malaria.—Kingsbury and Kanagarayer report a case of benign tertian malaria in which a total of 0.3 gm. of mercurochrome-220 soluble was given over three days. On the withdrawal of acetylsalicylic acid and three days after the last mercurochrome injection a typical rigor occurred, with a temperature of 102.9 F. A malignant tertian case received a similar quantity of mercurochrome, and fever recurred two days after the last injection. The dye appeared to have little effect on the number of malaria parasites in the peripheral blood and caused no modification in their staining properties. In neither case did albuminuria develop. Kingsbury and Kanagarayer consider that the action of mercurochrome on malaria parasites is practically negligible, and that in view of the unpleasant sequelae which result from its exhibition, it should not be given in cases of malarial fevers.

Excision of Pineal Body Under Intra-Arterial Anesthesia.—Twenty c.c. of a 2 per cent. solution of gum acacia containing one-quarter grain cocain hydrochlorid and 5 minims of epinephrin hydrochlorid (1:1,000) was slowly injected into the lumen of the collapsed artery. After a lapse of five minutes the head and face were completely anesthetic. No signs of shock were noticed either during or after the injection.

Pathognomonic Sign of Retrocecal Appendicitis.—The sign referred to by Tresidder was the position of lying flat on the face and abdomen, thus allowing the cecum to fall away from the inflamed appendix and giving relief from pain.

Journal of Physiology, London

60: *237-346* (Sept. 4) 1925

*Length of Muscle; Heat and Tension Developed in Isometric Contraction. A. V. Hill.—p. 237.
Combination of Carbon Dioxid in Blood of Bull Frog. H. Wastl and A. Seliskar.—p. 264.
*Heat Production During Contraction in Which Work is Performed. W. Hartree.—p. 269.
*Coagulation of Blood Plasma When Divested of Corpuscles. J. W. Pickering and H. G. Reeves.—p. 276.
Composition of Alveolar Air at Extreme Heights. T. H. Somervell.—p. 282.
*Action of Insulin and Salts of Guanidine on Permeability of Mammalian Erythrocyte. I. J. Secker.—p. 286.
*Reduced Sensitivity to Insulin of Rats and Mice Fed on Carbohydrate Free, Excess Fat Diet. H. W. Bainbridge.—p. 293.
Spread of Activity in Tenuissimus Muscle of Cat and in Other Complex Muscles. E. D. Adrian.—p. 301.
*Effect of Circulation on Electrical Resistance of Skin. F. Aveling and R. J. S. McDowall.—p. 316.
Method for Perfusion of Kidney with Deoxygenated Blood of Known Oxygen Tension. E. W. H. Cruickshank and D. Orahovats.—p. 322.
Innervation of Smooth Muscle. II. Frequency of Nerve Impulses Entering and Leaving Superior Cervical Ganglion. H. O. Veach and J. R. Pereira.—p. 329.
Cellular Changes in Intestinal Fat. Absorption. W. Cramer and R. J. Ludford.—p. 342.

Length of Muscle and Heat Production.—Experiments are described by Hill by which the relation between heat production and length of muscle was determined over a range of lengths from about 50 to 140 per cent. of that of the resting unloaded muscle. The same effects were found for all temperatures and for all durations of stimulus.

Heat Produced by Muscle Contraction.—Fenn's result has been confirmed by Hartree that when a muscle shortens, doing work, and provided that the weight lifted is held up and does not bear on the muscle during relaxation, the energy liberated in the form of heat is constant, that is, it is the same as the heat liberated in an isometric contraction, and independent of the load. In such a contraction, therefore, the muscle supplies extra energy equal to the work done.

Blood Coagulation.—Because the blood plasma of the domestic fowl collected in paraffined tubes and centrifugalized in the cold contains all the material essential for clotting, it is concluded by Pickering and Reeves that blood coagulation can occur without the intervention of either thrombocytes or tissue juices. Lowering the surface tension of this plasma increases its tendency to clot, but does not provoke immediate coagulation.

Action of Insulin.—Quantitative chemical and microscopic evidence is given by Secker in support of the view that the mechanism of insulin is to increase the permeability of the cell membrane. Guanidin resembles insulin in its action of increasing permeability. The presence of calcium is essential for this action of guanidin.

Sensitivity to Insulin.—Bainbridge fed rats and mice on a diet containing protein, salts and vitamins, from which carbohydrate was omitted, the necessary calory value being maintained by an increased amount of fat. Such animals developed a high degree of resistance to insulin. Certain experiments make it appear probable that an increased amount of carbohydrate and complete absence of fat in the diet render the animals still more sensitive to insulin than they would be on a complete diet, but this cannot be considered to be definitely proved. The variations in sensivity are not due to deficiencies in the amount of vitamin A present. The evidence as to the importance of the thyroid glands is inconclusive.

Electrical Resistance of Skin.—It is shown by Avelling and McDowall that in the cat a fall of the electrical resistance of the skin is associated with the constriction of vessels and that a rise is associated with a dilatation. Reasons are put forward why the fall of skin resistance which occurs on sensory stimulation may be considered to be due to similar vasoconstriction. The resistance of the skin may apparently be used as an indication of its vascularity.

Journal of Tropical Medicine and Hygiene, London

28: *313-328* (Sept. 1) *1925*

*Gongylonema. L. W. Sambon.—p. 313.
Nematode Parasites of Rabbits and Mice. H. A. Baylis.—p. 316.
Cultural and Biochemical Characters of Monilia Castellanii (Cryptococcus Castellanii) and Monilia Macroglossia (Cryptococcus Macroglossia). S. Re.—p. 317.

Gongylonema as Cause of Cancer.—The peculiar topographic distribution of cancer in Romagna, the prevalence of the disease in the esophagus and in the cardiac portion of the stomach, the constant presence of cockroaches, meal beetles and cellar beetles—all fosterers of the larval stages of *Gongylonema neoplasticum* in the houses where cancer cases had occurred, led Sambon to wonder whether *Gongylonema* might not be a factor in the causation of certain neoplasms affecting the upper portion of the alimentary tract of man, as is well known to be the case in rats infested by this spiruroid worm.

Lancet, London

2: 529-580 (Sept. 12) 1925

Treatment by Manipulation of Some Chronic Disorders of Knee-Joint Following Injury. A. G. T. Fisher.—p. 529.
Conservative Treatment of Fractures of Pelvis and Lower Extremity. W. I. de C. Wheeler.—p. 534.
*Experimental Treatment of Implanted Malignant Tumors of Rat. T. Lumsden.—p. 539.
*Chronic Nephritis with Possible Parathyroid Syndrome. C. R. Box and O. L. V. DeWesselow.—p. 543.
Yatren in Treatment of Amebic Dysentery; Results of Stovarsol in Certain Cases. P. H. Manson-Bahr and R. M. Morris.—p. 544.

Experimental Treatment of Implanted Malignant Tumors.—The tumors employed by Lumsden in this study were the mouse carcinoma (M. 63 of the Imperial Cancer Research Laboratory) and Jensen's rat sarcoma. In most cases the sarcoma was used because it was found that while M. 63 is very satisfactory for in vitro work, it is less suitable for experiments in vivo. It appears that an appropriate antiserum kills cancer or sarcoma cells in vitro, rapidly and invariably. It is much less toxic to the normal tissues than to the malignant cells. Pieces of cancer tissue kept in antiserum for from three to six days at 37 C. do not thereafter produce a progressive tumor when inoculated into the living animal. Jensen's rat sarcoma of the foot can be caused to disappear by repeated injections of antiserum into and round the tumor, along with temporary stoppage of circulation in the foot. After such removal of a tumor the rat becomes immune, so that a subsequent inoculation of Jensen's rat sarcoma into the other foot or into the axilla does not hold. When an implanted tumor is growing on each foot, removal of one of these by means of antiserum and constriction is, in a large proportion of cases, followed by absorption of the tumor in the other untreated foot. It is suggested that during absorption of the tumor after treatment with antiserum and constriction, the products absorbed from the attenuated or dying cells evoke a general active immunity which completes the cure and prevents subsequent grafts from holding. Such an antiserum might in this way prevent recurrence of a tumor after incomplete surgical removal.

Chronic Nephritis with Parathyroid Syndrome.—Box and de Wesselow report the case of a patient presenting definite evidence of chronic azotemic nephritis, and in addition an increased basal metabolic rate, a possible increase of sugar tolerance, and a recurrent laryngeal paralysis. On the chemical findings the most striking is the abnormally high calcium content of the serum. At one time it reached 20 mg. This extraordinary variation of what is usually one of the most constant constituents of the blood naturally suggests an involvement of the parathyroids. Such an involvement would be of the nature of a hyperplasia, since parathyroidectomy leads to a fall in the serum calcium. There appears, therefore, to be good evidence of a connection between chronic renal disease and parathyroid hyperplasia, and of the possibility of a mobilization of calcium salts in the condition.

2: *581-632* (Sept. 19) *1925*

Some Disorders of Larynx. V. E. Negus.—p. 581.
*Immunity to Toxin of Streptococcus Scarlatinae. H. Henry and F. C. Lewis.—p. 587.
*Geographic Distribution of Heart Disease in England and Wales. M. Young.—p. 590.
Therapeutic Properties of Stovarsol. C. Levaditi.—p. 593.
*Luminal Poisoning. H. Carlill.—p. 596.
*Renal Glycosuria with Ketonuria. J. Patterson.—p. 596.

Immunity to Toxin of Scarlet Fever Streptococcus.—Henry and Lewis found that the serum of persons who are sensitive to small doses of toxin contain little or no antitoxin. On the other hand, the serum of resistant persons contains a measurable quantity of antitoxin, amounting to as much as 500 units. That this amount is considerable may be judged from the fact that the best of a series of horse antitoxic serums titrated against 20 units of toxin have given a unitage of about 800 on the same scale.

Heart Disease in England and Wales.—From the data that have been investigated by Young he concludes: (1) The mortality from heart disease in the counties of England and Wales shows quite definitely a tendency to a special distribution in which the higher death rates are found in the counties toward the west. (2) The geographic distribution of the relative mortalities in the periods examined is very different from that described by Haviland as occurring in data for an earlier epoch, and the explanation offered by him—namely, that the excessive incidence is found in counties that are distant from the sea and sheltered by their physical surroundings from the sea winds, cannot be held to account for the distribution of the fluctuations in incidence in the present data. A definite association exists in the counties between the distribution of mortality from organic heart disease and heart diseases in the aggregate and the mortality from acute rheumatism. The relative incidence of acute rheumatism appears to be the essential factor that determines the incidence of heart disease, although other factors, possibly mainly environmental, may have some influence on the rate of mortality in different districts.

Luminal Poisoning.—In the case cited by Carlill luminal and potassium bromid in small doses were prescribed but, inadvertently, 10 grains of the former and 50 grains of the latter were administered daily for twelve days. On the twelfth day, she became stuporous and had a recurrence of double incontinence. The pupils were much contracted and lost their reaction to light. At times there was a divergent squint. The pulse rate was increased. The cerebrospinal fluid was under normal pressure. The urine contained no hematoporphyrin. After stimulation and a long delay she feebly obeyed certain instructions. Energetic treatment was employed in the form of strychnin, hot coffee by mouth and rectum, oxygen and faradism. The luminal and bromid were canceled. For a few days the periods of mental alertness increased in length but on each occasion she relapsed rapidly into stupor. Her conversation showed extreme confusion of thought. The tendon and superficial reflexes were unaffected throughout. The patient eventually recovered.

Renal Glycosuria with Ketonuria.—In Patterson's case the urinary examination was apparently contradictory to the findings based on blood analysis. The most striking feature was the continuous excretion of acetone bodies, a fact not merely based on a positive reaction but confirmed by more conclusive tests. The withdrawal of carbohydrate in the form of potatoes from the diet, or on the other hand, the addition of glucose, had no appreciable effect. The appearance of a ketonuria in these circumstances is evidently contrary to the present-day theories as to the relationship between carbohydrate and fat metabolism, unless it be assumed that in addition to a very low threshold for sugar the patient had also a lowered threshold for acetone. Unfortunately, it was not found possible to carry the investigation further in order to establish whether this were so or not, but since the abnormality cannot be accounted for on the basis of lack of carbohydrate utilization, it seems feasible to suggest that its cause is a parallel one to that responsible for the abnormality of the accompanying sugar excretion.

Medical Journal of Australia, Sydney

2: 213 244 (Aug. 22) 1925

Metabolism in Relation to Disease F S. Hansman —p 213
Definition of Normal Labor; Cause of Pain in Labor. M C. de Garis —p 222
Radical and Conservative Treatment of Salpingitis R. H Morrison. —p 225
Iodin as Component of Very Young Infant's Diet. H. L. Kesteven —p 226
Torsion of Normal Fallopian Tube R. M Allan —p 227.

Practitioner, London

115: 165 232 (Sept) 1925

Stone in the Bladder T C Evans —p 165
Treatment of Compound Fractures C. H Fagge —p. 179.
*Middle Ear as Source of Chronic Septic Absorption. E. Watson-Williams —p 185
*Dosage of Insulin P J. Cammidge —p 190.
Anesthetics for General Practitioners C. T. W. Hirsch —p 198.
*Colon Bacillus Infections A B Rooke —p. 205
*Ultimate Fate of Disused Portions of Intestine After Complete Short-Circuiting Operations. J. L Stretton —p 215.
Ophthalmic Signs in Common Nervous Diseases. W F Stiell —p. 218.
*Treatment of Acute Rheumatism and Its Allies J. Wishart —p 225

Middle Ear Infection.—In every case of chronic disease in which it is suspected that septic absorption from some local source is a factor, Watson-Williams insists that the ears be examined. In every case of chronic otorrhea, when the matter of operative treatment is under consideration, regard should be had, not only to the local conditions, but also to the actual or possible results on the general health of septic absorption.

Dosage of Insulin.—Cammidge says that if the best results are to be obtained from the insulin treatment of diabetes, once it has been decided on, the dose is a matter of great importance, for too little will not stay the progress of the disease, whereas too much may have disastrous consequences. Many factors enter into the determination of the optimum dose, and since they are never exactly the same in any two instances, each case is a law unto itself; but if the conditions existing are accurately ascertained for each patient, it is possible to secure very satisfactory results with comparatively small doses, even in seemingly severe cases, and, further, a reduction is often possible, as influences interfering with the full physiologic effect of the insulin administered are eliminated or minimized by suitable diet and treatment.

Colon Bacillus Infections.—Rooke is of the opinion that colon bacillus infection is extremely prevalent, and is the cause of a great deal of chronic ill health. The stage of invasion is usually ushered in by an acute febrile illness, but it may be insidious in its onset. The condition tends to become chronic. Relapses or reinfections are the rule rather than the exception. The majority of cases are associated with colitis. Gross lesions, such as appendicitis, cholecystitis and renal infections, are extremely common. Toxic manifestations, such as irregular heart action, mental depression, and derangement of the thyroid, frequently occur. Treatment must be directed toward (1) improving the condition of the intestine, and (2) increasing the patient's resistance. In order to prevent the disease from becoming chronic, treatment must continue for a long period after all signs and symptoms have cleared. It is as necessary for the *B. coli* infected patient to have the urine examined from time to time as it is for the syphilitic to have repeated Wassermann tests.

Fate of Disused Portions of Intestine.—Five years ago Stretton performed a complete short-circuiting operation on a woman, aged 31. He divided the ileum 12 inches from the ileocecal valve, closed the distal end, and planted the proximal end to the sigmoid flexure of the colon. He divided the colon above the anastomosis and closed both the cut ends. The patient made a good recovery and was able to perform her household duties. When he saw her again in 1925, she was suffering from acute distention of the abdomen. At operation it was found that the distention was caused by an enormous dilatation of the disused portion of colon. Stretton asserts that this is the only case of its kind on record. Usually the disused portion of bowel remains quiescent, and gives rise to no trouble.

Treatment of Tonsillitis.—Wishart treats each attack of tonsillitis as if it were premonitory to an attack of rheumatic fever. With the aid of an atomizer or throat brush he applies to the tonsils, during gentle expirations, a paint consisting of one part of tincture of iodin to seven parts of anesthetic ether, until the tonsils become iodin colored and dry. It may be found necessary to repeat the application every third day.

Annales de l'Institut Pasteur, Paris

39: 565 640 (July) 1925

The Spirochete Which Causes Mumps. Y. Kermorgant.—p 565.
*Resistance of the Galeria Bee-Moth to Tuberculosis Metalnikoff.—p 629.
*Rapid Preventive Treatment of Rabies. A. Hempt.—p. 632.

Natural Immunity of the Galeria Against Tuberculosis.—Metalnikoff found that the caterpillars of *Galeria melonclla* were refractory to enormous doses of tubercle bacilli, even during their chrysalis phase. The same resistance to tubercle bacillus infection was manifest in the chrysalis and in the moth stage. Microscopic examination of blood and sections revealed that the natural immunity of the galeria to tuberculosis was due exclusively to phagocytosis. The same results were obtained with human, bovine and avian tubercle bacilli.

Rapid Ether Method for Antirabies Treatment.—Hempt asserts that by inoculations of fixed virus, treated with ether, the subject can be immunized against rabies in three or four days in mild cases; in five or six days in grave cases. He used an emulsion of ether-treated virus diluted with saline. In adults 1 or 2 gm. of the nerve substance were injected in mild cases; 3 gm. when the conditions were grave, and 4 gm in the very grave. In mild cases, the treatment started by injections of brain emulsion. For children, the dose of vaccine corresponded to their age and weight. The injections were given twice a day. Of 6,000 persons given this treatment during the last three years, only two died during the treatment and one in the first fifteen days' interval.

Annales des Maladies Vénériennes, Paris

20: 561-640 (Aug.) 1925

Priority for Malaria Treatment of General Paralysis. M. Ikhtemann.—p. 561.
*The Colloidal Benzoin Reaction. A. Starobinsky.—p. 566.
Local Complications from Bismuth Injections. R. Barthélemy.—p. 570.
Gonorrhea and Hypochondria. R. Benon.—p. 578.
Primary Syphiloma in Urethra. Jamain —p. 591.
Gonococcus Infection by the Mouth. Carle —p. 593.

The Colloidal Benzoin Reaction.—The results of the test harmonized with those of the Wassermann test in 86.9 per cent. of Starobinsky's 516 cases. The benzoin test seemed to be the more sensitive of the two in patients with latent or visceral syphilis. In eleven cases of suspected syphilis, the test was positive while the Wassermann was negative. The pronounced specific character and easy reading of the results render the benzoin test, he says, at least valuable in controlling and completing the complement fixation reaction if not capable of replacing it entirely.

Annales de Médecine, Paris

18: 87-165 (Aug.) 1925

Venous Tension in Varices. M. Villaret et al.—p. 87.
*Cholesterol in Diabetes with Arteritis. M. Labbé and Heitz.—p. 108.
Present Status of Bacteriophage Treatment of Typhoid. *Lévy.—p. 136.*
*Glycemia and Cholesterolemia. Landau et al.—p. 143.
Lactic Acid in Blood of Diabetics. Collazo and Lewicki.—p. 153.

Cholesterolemia in Diabetics with Arteritis Obliterans.—Labbé and Heitz' conclusions are based on nineteen observations. The exaggerated amount of cholesterol in the blood of these patients does not seem to be connected with liver disturbances, albuminuria, the arterial pressure or syphilitic lesions. Cholesterolemia is more pronounced in grave cases with acidosis, or with deficient permeability of the arteries, coinciding with reduction or abolition of the oscillometer findings. The cholesterol content is particularly high in diabetics affected simultaneously with aortitis and arteritis. Arterial obliteration in diabetes is due to localization of cholesterol in the tunica intima. While sodium citrate did not display any action on the cholesterol content, insulin markedly reduced its amount.

The Relations Between the Sugar and the Cholesterol Content of the Blood.—Landau and his co-workers' investigation in sixteen persons indicated that food rich in cholesterol and free from carbohydrates increased the content of sugar and cholesterol in the blood. Epinephrin injection or ingestion of a large dose of sugar, raising the glycemia curve, reduced the cholesterolemia. Hunger increased the cholesterol content of the blood within the first thirty-six hours, while lowering the glycemia.

Bulletin Médical, Paris

39: 947-974 (Aug. 29) 1925

*Multiple Sclerosis: Early Diagnosis. R. A. Marquézy.—p. 953.
Idem: Ophthalmologic Signs. Lagrange and Marquézy.—p. 957.
Idem: Etiology. R. A. Marquézy.—p. 960.

Early Diagnosis of Multiple Sclerosis.—Marquézy has observed transient difficulty in sewing or in writing, or chilliness of one foot or paresthesia as the first symptom of sclerosis in patches. One patient had these attacks in an extreme form nearly daily for seven months; then there was an almost complete respite for two years. Other patients complained of progressive or sudden reduction of vision, but it was always transitory. Others of heaviness of the legs, or vertigo, the room turning around the subject, but no nausea. Sudden movements of the head, fatigue or emotional stress may bring on these symptoms. Urinary disturbances were noted early only in about a third of his patients, and never as a very early symptom. The repetition, the intensity and the grouping of these mild symptoms are characteristic. He has also had exceptional cases that began with acute hemiplegia, subsiding in a few weeks. The age, 18 to 30, is significant, as also the wavelike character of the disturbances. The colloidal benzoin test was positive with spinal fluid in 63 per cent. of twenty-seven cases; the Wassermann negative.

Comptes Rendus de la Société de Biologie, Paris

93: 303-392 (July 10) 1925. Partial Index

Albumoses in Blood and Urine in Catarrhal Jaundice. Chevallier.—p. 303.
*Preparation of Silica Agar for Cultures. M. Souleyre.—p. 306.
Intestinal Flora in Artificially Fed Infants. Tissier and Dreyfus.—p. 308.
Arsenic in Placenta After Neo-Arsphenamin. Dejust and Vignes.—p. 314.
Structure of Cartilage Cell. Parat and Godin.—p. 320.
*Glucose and Phosphorus of Blood in Vitro. Bierry and Moquet.—p. 322.
Acidosis Test in Nephritis. H. Bierry et al.—p. 325.
Acid-Base Balance in Hyperpnea. Targowla et al.—p. 330.
*Complications of Injection of Human Serum. Debré and Bonnet.—p. 331.
*Immunization of Guinea-Pigs. Brocq-Rousseu and Urbain.—p. 333.
*Effect of Spartein on Dogs. F. and L. J. Mercier.—p. 338.
Effect of Starvation on Gonads of Tadpoles. J. Arager.—p. 342.
Chronaxia in Muscle Degeneration. G. Bourguignon.—p. 348.
*Trinitrin and Amyl Nitrite. L. Payan and E. Giraud.—p. 351.
Local Hyperleukocytosis from Vaccination. Costa et al.—p. 354.
*Convalescents' Serums. S. Costa and L. Boyer.—p. 355.
Cheynes-Stokes Respiration in a Fish. J. Cotte.—p. 362.
*Action of Bile on Paratyphoid Infection. F. Venulet.—p. 366.
Immunization Against Diphtheria. Brokman and Sparrow.—p. *368;* p. 371.
Nonprotein Nitrogen in Diabetic Coma. Petrén and Odin.—p. 375.
Glycemia in Prognosis of Diabetes. H. Malmros.—p. 377.
Kottmann Test in Psychoses. Cernautzanu-Ornstein.—p. 387.
*Uremia in Scarlet Fever. M. Ciuca and F. Nadejde.—p. 389.

Method of Preparation of Silica Agar for Bacterial Cultures.—Souleyre describes the technic for rapid preparation of a silica gel by elimination of the silicate base under the form of insoluble potassium bitartrate.

Glucose and Phosphorus of Blood in Vitro.—Bierry and Moquet's experiments indicated a continuous decrease of glucose in blood kept in the thermostat. The phenomenon, especially marked in the second half hour, was accompanied also by diminution of the inorganic phosphorus. The disappearance of the glucose as well as of the phosphorus was accelerated when insulin was added to the blood.

Complications with Subcutaneous Injections of Human Serum.—Debré and Bonnet have injected over 1,100 children with serum against measles, whooping cough and mumps—a total of 7 liters of human serum. Complications occurred in about 2 or 3 per cent.—a local redness with edema appearing within the first hours and persisting one or two days. This was associated sometimes with fever and general malaise. The phenomena seem to be analogous to those from reinjection of horse serum in already sensitized subjects.

Vaccination by the Skin Against Anthrax.—Brocq-Rousseu and Urbain conclude from their experiments on eleven guinea-pigs that skin vaccination against anthrax confers immunity including all the organs. The animals proved resistant to several times the fatal dose of the virus, injected into the brain directly or through the orbit.

Action of Spartein on Heart and Arterial Pressure in Dogs.—In the Merciers' research on dogs, spartein sulphate increased the amplitude of the heart contractions without reducing the force of the myocardium. It retarded the cardiac rhythm to normal, but did not induce a permanent reduction of the arterial pressure.

Effect of Trinitrin and Amyl Nitrite on Venous Tension.—Inhalation of amyl nitrite caused in all five persons lowering of the venous tension, preceded in one case by brief hypertension. The action of trinitrin was analogous in seven cases; preceded by hypertension in three. Payan and Giraud ascribe the phenomenon to paresis of the sympathetic, with consecutive vasodilation; this was sometimes preceded by a short phase of vasoconstriction.

Advantage of Treating Serums from Convalescents with Formaldehyd.—Costa and Boyer add one part of 40 per cent. solution of formaldehyd to 2,000 parts of serum. With this method, complement fixation tests are unnecessary, since the syphilis spirochetes are destroyed by formaldehyd within a few hours. The immunizing action of the serum does not seem to be weakened, and the subcutaneous injection does not cause pain.

Influence of Ox Bile on Paratyphoid Infection in Rats.—Inoculation of the peritoneum with the paratyphoid B bacillus was fatal in rats, with ox gall injected simultaneously or three hours afterward. Further experiments with cultures on ordinary agar, or agar treated with bile, showed that the latter does not enhance the virulence of the paratyphoid bacillus, but it seems to reduce the resistance of the organism to the infection.

Uremia and Albuminuria in Scarlet Fever.—Retention of urea (from 0.05 to 0.2 per cent.) in the blood occurred in sixty-three of Ciuca and Nadejde's 108 patients with benign scarlet fever. In thirty-nine, neither albumin nor renal elements were present in the urine. In nineteen cases of nephritis with edema, complicating a mild form of scarlet fever, from 0.039 to 0.4 per cent. of urea was found in the blood. No albumin or renal elements were found in the urine of one patient. In twenty-one cases of grave scarlet fever, uremia existed in 97 per cent. while albuminuria appeared only in sixteen. In four fatal cases the amount of urea in the blood was 0.2 per cent.; but there were no pathologic elements in the urine. Evidently the diet in scarlet fever should be based on the dosage of urea in the blood.

Journal de Chirurgie, Paris

26: 1-128 (July) 1925

*Surgery for Excessive Muscular Tonus. P. Wertheimer.—p. 1.
*Access to External Carotid. L. Hartglas.—p. 11.

Sympathetic Ramisection in Treatment of Rigidity and Contracture of Muscles.—Wertheimer reviews the history of attempts to cure pathologic rigidity of muscles by operative means, especially section of the rami communicantes for excessive plastic tonus. The research at Lyons (Leriche and Wertheimer) and the work of Hunter and Royle have demonstrated that this is not a dangerous operation, and that it has a solid physiologic basis, and opens a new field of surgery.

Ligation of External Carotid.—Hartglas calls attention to the internal jugular vein as a reliable guide to the site of the bifurcation of the carotid. This vein is readily palpated, and when drawn forward and inward it allows free access to a comparatively long extent of the carotid artery, unless enlarged glands obstruct the way.

Journal de Médecine de Lyon

6: 453-484 (Aug. 20) 1925

Galvanic Functional Tests of the Internal Ear. L. Bard.—p. 453.
Rupture of Vessels in Soft Palate. J. Garel and A. Gignoux.—p. 461.
Complications of Cancer of Esophagus. F. J. Collet.—p. 463.
*Adenoids and Vegetative System. Rebattu and Paufique.—p. 465.
Tonsillectomy in Rheumatism. R. Bertoin.—p. 471.
Radiotherapy in Otorhinolaryngology. H. Proby.—p. 475.

The Vegetative Nervous System in Children with Adenoids.—Rebattu and Paufique examined ninety-nine children with adenoid vegetations. The arterial tension was decreased in 70 per cent.; the oculocardiac reflex exaggerated in 63 per cent.; diminished in 4 per cent. and normal in 23 per cent. Epinephrin injections only exceptionally increased the arterial tension, but accelerated the pulse in 50 per cent. of the patients. Pilocarpin injections exaggerated the oculocardiac reflex in 50 per cent. of the children. Evidently subjects with adenoid vegetations present a disturbed vegetative system. chiefly characterized by irritability of the vagus. This may explain the accompanying asthma in several of the children.

Marseille Médical

62: 1305-1364 (Aug. 15) 1925

Lagrange's Treatment of Glaucoma in Children. Aubaret.—p. 1306.
Old Focus of Congenital Hemeralopia. Truc and Opin.—p. 1314.
Technic for Cataract Operation. Aubaret.—p. 1319.
The Slit Lamp for Examination of Cataract. D. A. Viterbi.—p. 1326.
Sympathetic Ophthalmia After Cataract Extraction. Truc and Dejean.—p. 1335.
*Hypotonia with Herpes Zoster of the Eye. J. Sédan.—p. 1338.
Healing of Eye Wounds and Postsurgical Astigmatism. Mastier.—p. 1346.
Origin of the Word "Trachoma." E. Paparcone.—p. 1352.
*Béranger's Cataract Operation in 1757. C. Fromaget.—p. 1354.
*Daviel's Operation for Cataract in 1745. Aubaret.—p. 1358.

Herpes Zoster of the Eye.—Sédan applied autohemotherapy in two cases with unilateral hypotension from zoster ophthalmicus. Eight subscapular injections were given at three day intervals The first injection was of 5 c.c.; the second and third, 10 c.c.; the fourth, 15; the fifth, 20 c.c.; the last three from 30 to 35 c.c. of own blood. Rise of the intra-ocular tension and improvement of visual acuity were manifest after the fifth injection. Under this treatment the pain rapidly subsided and the zoster lesions on the cornea retrogressed. Each injection of the blood raised the tension for twenty-six to thirty hours. Vision was 8:10 to 9:10 three months later.

The Pioneers in Cataract Operations.—This issue of the *Marseille-médical* is devoted to ophthalmology in honor of the hundred and eightieth anniversary of the extraction of the opaque crystalline lens by Daviel in 1745. He came to Marseille in 1721 to help fight the plague, and was made chief surgeon to the hospital. Béranger, who introduced twelve years later the method of extraction of the cataract in the capsule, practiced at Bordeaux. A letter from Daviel describing his work is reproduced.

Paris Médical

57: 173-184 (Aug. 29) 1925

Diagnosis of Multiple Tumors of Spinal Cord. Cestan et al.—p. 173.
Amebiasis of the Bronchi. E. Yaloussis.—p. 181.
Improved Technic for Artificial Pneumothorax. L. Baillet.—p. 183.

57: 185-212 (Sept. 5) 1925

Ophthalmology in 1925. G. Cousin.—p. 185.
Paralytic Mydriasis from Belladonna. F. Terrien.—p. 191.
Scratches of the Cornea. A. Cantonnet.—p. 193.
Otorhinolaryngology in 1925. L. Dufourmentel.—p. 194.
Causes of Error in Examination of Vestibule of Ear. Winter.—p. 198
Clinical Significance of Nasal Polyps. P. Cornet.—p. 203.
Stomatology in 1925. L'Hirondel and Richard.—p. 205.
Local Treatment of Bismuth Line on Gums. Fargin-Fayolle.—p. 209.

57: 213-224 (Sept. 12) 1925

Mental Automatism and Hallucination Delirium. J. Lévy-Valensi.—p. 213.
Infectious Mastitis in Men. E. Bressot.—p. 222.

Presse Médicale, Paris

33: 1153-1168 (Aug. 29) 1925

*Spirochetes in Chancroid. Hudelo and Rabut.—p. 1153.
*Tumor of Stenson's Duct. J. Sénèque.—p. 1153.
Functional Mitral Stenosis in Exophthalmic Goiter. Bickel.—p. 1154.
*Lesions of Meniscus of Knee-Joint. E. Bressot.—p. 1158.
*Visualization of the Gallbladder. G. Sabatini and E. Milani.—p. 1160.
Dropsical Appendix and Gallbladder. Petrescu and Lazarescu.—p. 1161.

Association of Spirochetes in Chancroid.—Hudelo and Rabut noted coexistence of syphilitic infection in one of every seven in 173 patients with chancroid. They emphasize that association of Ducrey's bacillus with the spirochete of syphilis may not be detected for two months, since the incubation period of the latter is in certain cases prolonged, and a positive Wassermann reaction may not appear till late.

Occupational Tumor of Stenson's Duct.—Sénèque describes a gas tumor of Stenson's duct in a glass-blower employed for thirty-five years. The tumor completely disappeared under roentgen-ray treatment. Six exposures were given, to a total of about six hours. Ligature of Stenson's duct or avulsion of the auriculotemporal nerve should be tried only after irradiation has failed.

Treatment of Lacerated Semilunar Cartilage.—Bressot found injury of the semilunar cartilage in twelve cases out of thirty with trauma of the knee. The characteristic signs of the injury are recurring hydrarthrosis and pain inside the line between the articular cartilages. The lesion is usually an incomplete laceration of the internal cartilage. The operation of choice consists in removal of the entire fibrocartilage, after severing the internal lateral ligament. A cast is then applied for fifteen days. Three patients out of five, observed from four months to four years, recovered the normal use of the knee. The two with only partial meniscectomy were much improved but not quite cured.

Visualizing of the Gallbladder by Bromids.—Sabatini and Milani obtained a distinct picture of the gallbladder and gallstones after administration by the mouth of a single dose of 10-20 gm. of sodium bromid and strontium bromid, diluted in 100 or 150 gm. of water. Sometimes two doses of 10 gm. of the bromid were given at a four hour interval. Roentgenograms were taken from five to twelve hours afterward. The gallbladders were visible in 60 per cent. of healthy persons, and in over 80 per cent. of those with diseased gallbladders. The authors describe the details of the method, and reproduce instructive roentgenograms. They believe that the bromin is responsible for the success of the Graham-Cole intravenous tetrabromphenolphthalein technic. Ingestion by mouth of the bromids seems to answer equally well; bromin may be electively eliminated by the hepatic duct.

33: 1169-1184 (Sept. 2) 1925

*"Inapparent" Typhus Infection. C. Nicolle.—p. 1169.
Anesthesia in Obstetrics. P. Delmas and A. Roume.—p. 1171.
*Metabolism of Raw and Boiled Meat. Richet and Monceaux.—p. 1173.
Cholecystostomy as Emergency Operation. J. Berger.—p. 1174.
Fascia of the Pelvis. N. Barbilian.—p. 1176.

"Inapparent" Typhus Infection: Rôle of Inapparent Infections in Epidemics.—Nicolle refers to experiments on guinea-pigs and rats showing an afebrile form of typhus, without clinical signs of the infection. The presence of inapparent typhus was confirmed by the virulence of the blood and organs, especially of the brain, from the animals. It represents an attenuated form of the disease while yet inducing immunity. The inapparent infection differs from latent infection, existing in bacteria carriers, which is a chronic condition. It is probable that such unrecognizable infection with whooping cough and measles may be responsible for certain epidemics.

Comparative Action of Raw and Boiled Meat.—Two dogs given meat, boiled for sixty minutes, eliminated 25 per cent. more urea; 52 per cent. more total nitrogen; 700 per cent. more chlorids and 20 per cent. more phosphorus than dogs fed with raw meat. The amount of eliminated water was also notably increased with boiled meat. Richet and Monceaux conclude that raw meat may be indicated in liver disease with a deficient protein metabolism and in diabetes insipidus, while boiled meat is preferable in nephritis with dropsy.

33: 1185-1200 (Sept. 5) 1925

*The Graham Test by the Mouth and Vein. Gosset and Loewy.—p. 1185.
Azoospermia from Congenital Syphilis. C. Simon.—p. 1188.
Anterior Poliomyelitis of Syphilitic Origin. Fribourg-Blanc and Jausion.—p. 1190.
Protein Therapy in Gastric and Duodenal Ulcers. Oury.—p. 1192.

Cholecystography.—Gosset and Loewy discuss the results of the Graham method for visualization of the gallbladder by intravenous injections of sodium tetrabromphenolphthalein in eighteen cases, and by sodium tetra-iodophenolphthalein, intravenously, in forty-eight cases, and by the mouth in twelve. With the substances ingested, the roentgen-ray picture of a normal gallbladder was hardly visible, while it was distinct in cholecystitis with calculi. The best results were obtained with tetra-iodophenolphthalein by the vein. While slight lesions of the gallbladder cannot be detected at the present time, an exact diagnosis with the Graham-Cole test may be counted on, they say, in an average of 85 per cent. of all other cases.

33: 1201-1216 (Sept. 9) 1925

Tumors of Frontal Lobe. L. Poussepp.—p. 1201.
*Skin Diseases with Nervous Disturbances. Lortat-Jacob.—p. 1204.
Surgical Forms of Thyroid Tuberculosis. P. Aubriot.—p. 1207.
Irradiated Food in Treatment of Rickets. L. de Gennes.—p. 1210.

Nervous and Psychic Disturbances Coexisting with Skin Diseases.—Lortat-Jacob describes three cases of eczema, associated with obsessions and melancholia in women, aged from 25 to 55. In one instance recurring eczema was connected with epileptic seizures; in another, an eruption of an impetigo and lichen type accompanied general convulsions in a child, aged 4. The affections appeared to be congenital and were probably of syphilitic origin. The infection may involve the ectoderm controlling the development and functioning of the nervous system. Arsenicals are indicated in these cases.

Revue Française d'Endocrinologie, Paris

3: 213-276 (Aug.) 1925

Passage of Secretion from the Pituitary into the Tuber-Infundibulum: Neurocrinia. R. Collin.—p. 213.
*Headache from Intracranial Hypotension. L. Cornil.—p. 229.
Embryology of the Pituitary in Birds. C. Pfeiffer.—p. 236.
Biologic Importance of the Lipoids of the Suprarenal Cortex. R. Porak.—p. 249.

Headache from Intracranial Hypotension.—Cornil does not refer to the transient headache after lumbar puncture nor to the hypotension from local sclerosis preventing production of cerebrospinal fluid. He describes three cases in which low blood pressure entailed such intracranial hypotension that severe and almost continuous headaches resulted. The low blood pressure in these cases was due to deficient suprarenal functioning, the result of a severe attack of influenza or the effect of mushroom poisoning or of deep radiotherapy of a fibroma. Other signs of suprarenal deficiency were prominent, some of the three women being confined to bed from the asthenia and pains in the lumbar and dorsal regions, spreading to the scapula and stomach. Two of the women displayed a slight tendency to pigmentation, and the headaches were of the meningitis type. In all the cases treatment with total extract of suprarenal banished the headaches at once; the general health improved more slowly. Suprarenal treatment, by raising the blood pressure, has a decidedly favorable action on this secondary headache from primary suprarenal insufficiency. Cornil adds that intraspinal injection of 1 c.c. of the suprarenal extract does not raise the pressure in these cases, but a rise in pressure by 30-40 per cent. is evident in four or five minutes after intramuscular injection. This confirms the assumption that arterial hypotension entails hypotension in the cerebrospinal fluid.

Schweizerische medizinische Wochenschrift, Basel

55: 817-840 (Sept. 3) 1925

The Diseases of the First Dentition Period. E. Feer.—p. 817.
Technic of Percussion. O. Amrein.—p. 820.
Chronic Paronychia. J. von Deschwanden.—p. 821.
Orthopedic Diseases of the Foot. M. Dubois.—p. 824.
Epilepsy of Genital Origin. J. S. Galant.—p. 830.
The So-Called Calomel Cure. L. Gelpke.—p. 833.

Pathologica, Genoa

17: 393-420 (Aug. 1) 1925

Changes of Leukemic Type in Blood of Rats with Tar Cancer. Balbi.—p. 407.
*Technic for Cultivation of Anaerobes. G. Vercellana.—p. 410.
Malformations of the Kidneys. G. Invernizzi.—p. 413.

Cultivation of Anaerobes.—Vercellana has modified Rockwell's pyrogallic acid method. Instead of pouring the acid on the cotton plugging the tube with the culture—which has certain disadvantages—he puts the pyrogallic acid in an Erlenmeyer jar below the culture. The agar is poured into a bottle to form a thin coating throughout the bottom of the bottle. This is inoculated with the micro-organism; the flask is then inverted, and the mouth is introduced into the mouth of the Erlenmeyer. The junction is made air-tight with shellac. He has cultivated in this way the bacillus of tetanus and of malignant edema, using in the jar 50 c.c. of a 10 per cent. solution of potassium hydrate and 5 gm. of pyrogallic acid, instead of Rockwell's mixture. Two test tubes can be used in the same way, shellacking the two mouths together. They can be separated by holding the shellac over a flame.

17: 421-448 (Aug. 15) 1925

Iron-Containing Cells in the Ovary. Puccinelli.—p. 433.
Medical Geography of Somalia. E. Corrado.—p. 438.
Basal Metabolism During Work and Fatigue. Caccuri Scipione.—p. 441.
*Salpingography. C. Vercesi.—p. 442.

Visualization of Fallopian Tubes.—Vercesi reproduces a roentgenogram taken after injection of iodized oil through the tubes. The flaring out of the shadow beyond the farther end of the tube is evidence of its permeability. He never witnessed any untoward by-effects from the use of this 40 per cent. suspension of iodin in a vegetable oil.

Clinica Pediatrica, Modena

7: 449-512 (Aug.) 1925

*Habitual Vomiting of Breast-Fed Infants. Cozzolino.—p. 449.
Nontuberculous Chronic Bronchopulmonary Affections in Young Children. G. Salvioli.—p. 476.

Habitual Vomiting in Breast-Fed Infants.—Cozzolino's experience confirms the prompt benefit from giving the infant one or two teaspoonfuls of a thick gruel or potato purée a few minutes before each suckling. He gives the details of fifteen cases in which this thick feeding promptly arrested the tendency to vomit. Only two required a little atropin in addition to conquer the gastric neurosis. He sometimes ordered moist heat to the stomach after nursing. The weight of the heavy gruel tends to break up the bad habit that has been acquired by the peristolic reflex. The success of this dietetic treatment is a touchstone to exclude a syphilitic or anaphylactic basis.

Policlinico, Rome

32: 1207-1237 (Aug. 31) 1925

*Fever in Secondary Syphilis. G. Antonelli.—p. 1207.
Iodized Oil in Roentgenology of the Pleura. P. Cignolini.—p. 1213.
"Aplasia of Suprahepatic Vein." Silvestri.—p. 1214. Reply. Bastai.—p. 1215.

Syphilis Simulating Malaria.—The young man presented fever every evening, beginning forty days after discovery of a primary chancre. A chill for a few minutes preceded the fever which reached 38 to 40 C. and terminated with a sweat as the night advanced. Headache accompanied the fever, and in time there were pains in the sternum and tibias. There was a four plus Wassermann reaction, and the spleen was not enlarged. After nearly four months of this pseudomalaria, the fever was arrested by a single injection of neoarsphenamin, after it had been returning for four months. Antonelli adds that women are more subject than men to essential secondary syphilitic fever. In his case there did not seem to be any manifestations of the syphilis outside of the fever, although skin and mucosa were repeatedly examined, but there was intense monocytosis, with relative lymphocytopenia and a tendency during the fever to nervous disturbances of a hystero-epileptiform nature such as had been observed years before on very rare occasions. He accepts this case as confirming Levaditi's theory of the distinction between the dermotropic and the neurotropic spirochetes.

32: 1239-1272 (Sept. 7) 1925

*Leukemia After Trauma. M. Martinelli.—p. 1239.
*Connection Between Trauma and Cancer. F. Speciale.—p. 1241.
*Rheumatic Nephritis. V. Vanni.—p. 1243.

32: 1273-1307 (Sept. 14) 1925

Hematogram in the New-Born in Health and Disease. Pollitzer.—p. 1273.
Cold Abscess of the Tongue. G. Fantozzi.—p. 1282.

Leukemia Following Trauma.—The man lost consciousness when hit in the chest by a log, but no fracture resulted and there was no vomiting or internal hemorrhage, only progressive weakness for three weeks, then bleeding from the gums. Blood changes indicating myeloid leukemia were followed by death, one month after the trauma. A recent second similar case of acute fatal leukemia after a trauma, and four that Martinelli has found on record raise the query whether the accident insurance companies were justified in refusing to accept a causal connection between the trauma and the acute fatal leukemia.

Connection Between Trauma and Cancer.—Speciale adds another case to the long list in which a sarcoma developed in the limb which had been injured not long before. The first symptoms of the malignant disease were noted a week after grave trauma of the ankle. There was no question of accident insurance in this case.

Rheumatic Nephritis.—In Vanni's case, the young man developed, twenty days after an infectious sore throat, severe pains in muscles and joints with hematuria and casts in the urine. Under salicylate treatment, the whole clinical picture promptly subsided, including the symptoms of nephritis.

Riforma Medica, Naples

41: 721-744 (Aug. 3) 1925

Peptic Ulcer in Meckel's Diverticulum. G. Pascale.—p. 721.
*Cancer in Upper Air Passages. S. Citelli.—p. 724.
*Oxaluria. F. Piccininni and E. Lombardi.—p. 726.
*Contamination Meningitis. G. de Toni.—p. 729.

Cancer in the Upper Air Passages.—Citelli has encountered forty-five cases of this kind, since 1918, in his ear, nose and throat clinic. Over half of them were under 50; the youngest was a boy of 12 with a carcinoma in the maxillary sinus. Citelli accepts the increasing prevalence of cancer, and especially that of the upper air passages, as an argument in favor of a parasitic origin. Metastasis was common and early.

Oxaluria.—Piccininni and Lombardi present data collected independently which demonstrate that a special strain of the colon bacillus sometimes acquires the property to produce oxalic acid. This strain continues to produce oxalic acid in the test tube, and also in persons free from oxaluria who ingest cultures of this strain; more or less oxalic acid then appears in their urine.

Meningitis from Contamination.—The meningococci in the infant's spinal fluid were concealed by the luxuriant growth of a saprophyte accidentally introduced, possibly by the physiologic solution sold for injection purposes.

Rinascenza Medica, Naples

2: 297-320 (July 1) 1925

The Reticulo-Endothelial Apparatus. A. Fortunato.—p. 297.
Sarcoma in Child Kidney. R. Jemma.—p. 299.
Case of Familial Splenic Anemia. V. Tramontano.—p. 301.
Pruritus in Tabes. A. Oro.—p. 303.
*Milk Protein Therapy in Eczema. N. De Sanctis.—p. 307.
Spirochetes and Spirochetosis. M. Musella.—p. 308.

Parenteral Protein Therapy of Eczema in Infants.—De Sanctis has been treating eczema in thirty infants with intradermal injection of 2 c.c. of the same milk used repeated every second day or at longer intervals. Four of the infants were artificially fed, the others breast fed. Even after a single injection, in some of the children, the discharge dried up and no new lesions developed. Four injections usually completed the cure. He applied this "homologous galactotherapy" intradermally in order to utilize the defensive forces in the skin. He regards it as the simplest and most successful treatment for milk crust in infants, while it avoids all the inconveniences and dangers of local measures. One infant was in an extremely debilitated condition, the eczema involving the entire body, but it recovered completely with ten injections in thigh or buttocks of the mother's milk. No appreciable by-effects were observed except in one case in which there seemed to be an actual transient colloidoclastic shock.

Anales de la Facultad de Medicina, Montevideo

10: 307-394 (April) 1925

High Shoulder: Congenital or Acquired. J. Cunha.—p. 307.
*Alternating Regular Heart Beat. A. Alvarez Mouliá.—p. 332.
Wounds and Disease of the Patella. D. Prat.—p. 348.
Case of Subacute Tetanus. J. C. Del Campo.—p. 357.
*Sexual Enlightenment of the Young. N. Leone Bloise.—p. 361.

Case of Alternating Regular Heart Beat.—Alvarez Mouliá gives eleven tracings of the alternating ventricle and auricle beat without extrasystoles. The wave in both the cardiogram and the jugular pulse showed the alternating auricle beat plainly.

Sexual Enlightenment of the Young.—Leone Bloise pleads for systematic handling of this subject by the parents, in the school and university, and by the family physician, as occasion presents. The father answering the questions of the little child in their walks begins this sexual enlightenment, and the teacher, the school physician, the senior medical students should assemble the fathers of the children to prepare them for this task, and continue it themselves later. He has been carrying on such work himself for eight years, and states that some of his earliest disciples recently expressed anew their perennial gratitude for his talks and guidance in sexual hygiene.

Archivos Españoles de Pediatría, Madrid

9: 385-448 (July) 1925

*Plastic Operations on Children. V. Juaristi.—p. 385.
*Fatality from the Persisting Thymus. J. L. Morales.—p. 392.
*Nasal Pruritus in Meningitis. G. R. Lafora.—p. 398.

Remote Results of Plastic Operations.—Juaristi gives illustrations of three adults operated on in childhood, with deplorable ultimate results. In one young man, after an operation at the age of 3 for osteomyelitis of the maxilla, with extensive loss of substance, the ankylosis was almost complete. He removed the solid mass formed by the teeth that had interlocked as they grew. The dental prosthesis then provided was made with a bulging portion that tended to correct the extreme asymmetry of the lower part of the face. The case of extensive burn from waist to heel at the age of 8 had healed with cicatricial bands, and a large epithelioma in the dystrophia area has just been removed from the young woman.

Fatal Hypertrophy of the Thymus.—Morales' patient was a girl of 11 who had suddenly developed difficulty in swallowing, two months before, with attacks of suffocation especially at night, for which no cause could be discovered by auscultation, percussion or radioscopy, although there was slight inspiratory hissing, cyanosis, and tendency to syncope. Necropsy revealed a large thymus hidden behind the lungs, and he ascribes the symptoms to perverted functioning of the persisting thymus, as there were no signs of mechanical compression. The fatal suffocation occurred notwithstanding that the child was wearing a large O'Dwyer laryngeal tube. He endorses Marfan's plea for treatment as for syphilis in such cases.

Itching of the Nose an Early Sign of Meningitis.—Lafora ascribes this early symptom to irritation of the trigeminal nerve with incipient meningitis of any kind.

Brazil-Medico, Rio de Janeiro

1: 287-300 (June 6) 1925

*Epinephrin Treatment of Glaucoma. G. de Andrade.—p. 287.
Sterilization of Instruments in Glycerol. E. Campos.—p. 291.

Epinephrin Treatment of Glaucoma.—De Andrade reviews the literature on this subject, and reports three cases of acute or subacute or simple glaucoma and a case of acute glaucoma in which he applied Hamburger's method of subconjunctival injection of epinephrin. The effect was uncertain and transient; at most it may serve to reenforce the miotic, or to tide along briefly until an operation is feasible. Any medical treatment, he says, has the disadvantage of misleading the patient to a false confidence that operative measures can be averted.

2 : 29-42 (July 18) 1925

Structure and Reproduction of Bacteria. A. Fontes.—p. 29.
*Pathologic Physiology of Diabetes. Pimenta Bueno.—p. 31.

Pathologic Physiology in Diabetes.—Pimenta Bueno presents arguments to sustain the view that the fundamental and single cause of diabetes is the excessive excitability of the splanchnic sympathetic. This induces vasoconstriction of the capillaries in the liver, entailing hypotension of the interstitial plasma, with aspiration of glycogen from the interior. Almost any vagotropic substance would have the same effect; it is not peculiar to insulin. Under intramuscular injection of 2.5 gm. of peptone the glycosuria dropped from 0.31 per cent. to zero in one case described, and from 2.7 per cent. to 0.74 per cent. in another after 1 gm. of peptone. He gives charts to explain the mechanism of this functional trophodynamics—the intensity of function depending on the intensity of the blood supply, other things equal.

2 : 43-56 (July 25) 1925

Clinical Aspects of Preventive Medicine. Annes Dias.—p. 43.
*Venomous Spiders. Vital Brazil and J. Vellard.—p. 47.
Case of Abscess of the Cornea. E. Campos.—p. 51.

Spiders as Enemies of Snakes.—Two species of Brazilian spiders are described, the poison of which kills snakes. These spiders fight serpents; their adult season is the season of the serpents' young.

Prensa Médica, Buenos Aires

12 : 169-200 (July 20) 1925

*Neurofibromatosis with Suprarenal Deficiency. C. Mainini.—p. 169
*Generalized Edema as Early Sign of Gastric Cancer. C. Bonorino Udaondo and M. M. Casteigts.—p. 178.
Vagotonia and Dermographism in Parkinsonian Syndrome. M. R. Castex and A. F. Camauer.—p. 181.
Reconstruction of Nose. R. Pini and R. Becco.—p. 187.
Dermatosis and Syphilis. J. L. Carrera.—p. 190.

Recklinghausen's Disease with Suprarenal Deficiency.—Mainini is inclined to ascribe to a primary diffuse affection of the sympathetic system the intense neurofibromatosis with progressive asthenia and other signs of loss of suprarenal functioning. Necropsy failed to reveal any cause for the suprarenal deficiency beyond the neurofibromatosis, although the man had been addicted to alcohol and the Wassermann test was positive; there were no signs of tuberculosis.

Edema as Early Symptom of Gastric Cancer.—Vague dyspeptic disturbances in the woman of 46 and man of 36 were soon followed by edema in the legs which rapidly spread although nothing in heart or kidneys could explain the tendency to generalized dropsy. In about four months a small tumor became palpable in the woman's stomach, which rapidly developed intensely malignant features. In the man, the whole syndrome ran its course in two or three months. These cases of gastric cancer with anasarca as practically the first symptom can be differentiated only by exclusion. The cancer evidently induces a bilateral phlebitis by infection; the blood shows the type of cancer anemia. In these two recently observed cases necropsy failed to show any evidence of compression to explain the edema. There was repeated hematemesis in the second but not in the first case.

12 : 233-272 (Aug. 10) 1925

*Thrombophlebitic Form of Banti's Disease. C. Alvarez.—p. 233.
The Digestive Period in Gastric Ulcer Studied by the Fractional Method. C. Bonorino Udaondo et al.—p. 242.
Alopecia Areata as a Sympathetic Affection. Castex and Camauer.—p. 250.
*Cancer. G. Fichera.—p. 262. Cont'd.

Form of Banti's Disease with Thrombophlebitis.—Alvarez' patient was a boy whose spleen had been slowly enlarging for seven years. There were six periods of sudden and profuse gastro-intestinal hemorrhages, with fever, and followed by ascites which was gradually resorbed each time. There were never any appreciable symptoms from the liver. The spleen grew smaller after each gastric hemorrhage. The boy is now 10, malnourished and anemic. Splenectomy was deferred in the early stages of the disease, and now it seems too grave to venture. Seven Argentine surgeons have reported a total of thirteen operative cases, but all proved fatal in a few days to a year with a single exception; this was Castaño's patient who is still in good health eight years later. Alvarez' case teaches, however, that hemorrhages and ascites do not indicate that the disease has already reached an inoperable stage. The hemorrhages may reveal merely the spleen thrombosis.

Cancer.—Fichera states that half a million persons die of cancer every year, and that Europe alone is responsible for 300,000, and North America for 95,000. England's figure is 45,000; France, 24,000; Italy, 27,000, and Argentina, 5,696. No climate or race is exempt, but women develop cancer at an earlier age than men, and the malignant disease attacks perferably organs in which there is exceptional cellular activity during their functioning. He thinks the alleged increased prevalence of cancer is more apparent than real, and is hoping much from the collective inquiry undertaken by the League of Nations.

Revista de la Soc. Arg. de Biología, Buenos Aires

1 : 213-290 (June) 1925. Partial Index

*Autoreinfection of Hookworm. J. Bacigalupo.—p. 220.
*Polyuria After Hypophysectomy. B. A. Houssay et al.—p. 237.
*Casein in the Diet of White Rats. L. Savazzini.—p. .265.
Action of Insulin on Glycolysis in Vitro. O. Pico Estrada et al.—p. 275.

Autoreinfection of Hookworm.—A woman with extensive burns was constantly in the hospital for three years. She was treated for hookworm on admittance, and was apparently cured for three months. Then the ova reappeared in the stools, and were again banished. Again they reappeared after six months, and Bacigalupo then examined the finger-nail dirt, finding one normally developing ovum and two larvae. After the finger-nails were sterilized there was no further return.

Polyuria After Intracranial Lesion.—The pituitary was removed in toads or the infundibular region touched with a hot needle. This induced extreme polyuria, and the weight increased in toads deprived of the pituitary. The toad seems to be the only animal in which the secretion of the pituitary can be measured by the changes in the color of the skin.

Casein in the Diet of White Rats.—On the Osborne and Mendel complete ration (with 10 per cent. casein) the animals lost weight and developed anemia, as also when casein was given with other rations.

Revista de la Soc. de Med. Interna, Buenos Aires

6 : 177-240 (June) 1925

Iodized Oil in Compressed Lung. A. A. Raimondi et al.—p. 177.
*Polyp Obstructing the Pylorus. P. Escudero.—p. 196.
Clinically Latent Stenosis of Pulmonary Artery. Beretervide.—p. 199.
*Vision of Own Retinal Circulation. E. P. Fortin.—p. 205.
Primary Pyopneumocyst in Liver. Escudero and Tobias.—p. 217.
*Case of Bronzed Diabetes. I. M. Hernández and M. Benarós.—p. 223.

Stenosis of the Pylorus from a Polyp.—Four years after mammectomy for cancer, pains in the epigastrium and oppression after eating were accompanied by biologic signs of cancer (retarded glycosuria and exaggerated autolysis in the urine) and evidence of stenosis of the pylorus. The stomach was removed, but no traces of cancer were found; the tests had been misleading. The obstruction at the pylorus was due to a minute polyp.

Direct Inspection in One's Own Eye of the Blood Corpuscles and Their Movements.—Fortin asserts that with the blue light of the mercury vapor lamp it is possible to behold the circultion in one's own retina as distinctly as articles seen through the best microscope. A blue sky or a snow field reproduces similar conditions to a very slight degree. He explains the mechanism of the phenomenon, and remarks that instead of saying "A man is as old as his arteries," it would be better to say "as old as the circulation in his retina," because he can gage that himself.

Bronzed Diabetes.—The man, aged 37, presents grave diabetes, hypertrophic cirrhosis of the liver and extreme bronzing of the skin, but there is no asthenia and the blood pressure is normal. Alcoholism is the only clear pathologic antecedent. With insulin he has been rescued twice from precoma, but the condition is slowly progressing. There are no indications of hemolysis.

Semana Médica, Buenos Aires

2: 165-220 (July 23) 1925

*Banti Syndrome from Congenital Syphilis. Acuña and Maggi.—p. 165.
*Sarcoma of Eyelid. P. Satanowsky.—p. *169.*
Nontuberculous Induration of Right Apex in Case of Obstructed Nasal *Breathing.* Riccitelli.—p. 178.
Experiences with Fractures. R. V. Hernández.—p. 180.
Long Retention of Four Months' Fetus. J. Bazán.—p. 190.
Street Venders of Eatables. A. Casotto.—p. 192.
Special Features of Influenza in Infants. Llosa.—p. *193.*

The Banti Syndrome from Congenital Syphilis.—Acuña and Maggi report a third case in which a girl apparently moribund from advanced Banti's disease recovered clinical health under treatment for the previously unsuspected or unheeded congenital syphilis. This improvement has persisted unmodified for six months to date. The girl is now 14. There had been evidently sclerogenous lesions of syphilitic origin in the viscera, with inflammation involving the peritoneum. The reds numbered 800,000, the whites 3,125, and there had been vomiting of pure blood on four occasions during the year and a half of the disease.

Sarcoma of the Eyelid.—Satanowsky gives an illustrated description of a case of melanic sarcoma of the tarsal conjunctiva successfully removed, the patient, a man, aged 60, and a case of subcutaneous leukosarcoma of the upper lid of a boy, aged 5. In this latter case the sarcoma continued its fatal course, notwithstanding two operations and roentgen-ray and radium treatment in the course of about eighteen months.

2 *: 221-276* (July 30) 1925. Partial Index

The Pelvic Sympathetic. C. F. Rophille.—p. 221.
Definition of Permanent Hypertension. J. R. Goyena.—p. 234.
Preventoriums in Buenos Aires. A. A. Raimondi.—p. 235.
*Hemoptysis from Hypertension. R. Rossi.—p. 250.
Technic for Making Iodotannic Jelly. A. J. Bandoni.—p. 253.

Hemoptysis in Hypertension.—Rossi warns against ascribing to tuberculosis what is really a hemorrhage from hypertension. The older age, the lack of fever, the large heart, the often positive Wassermann reaction, should suggest the true and nontuberculous origin. He has never encountered chronic hypertension in a tuberculous subject. He describes a few cases of nontuberculous hemoptysis; in one it has recurred twice, relieving the woman's asthma each time. Another woman has had hemoptysis six times; in another case epistaxis and hematuria have alternated with hemoptysis, nearly daily, for six weeks. In all in this group, inoculation of guinea-pigs with the sputum was constantly negative.

Beiträge zur klinischen Chirurgie, Berlin

134 *: 1-152, 1925*

Chronic Osteomyelitis. F. Oehlecker.—p. 1.
Typical Fractures of the Radius. A. Pörsch.—p. 53.
*Enterostomy in Peritonitis and Ileus. H. Hübener.—p. 93.
*Operative Treatment of Subcutaneous Fractures. A. Nast-Kolb.—p. 103.
Homoplastic Transplants. C. Rohde.—p. 111.
The Pathology of the Elbow Joint. S. Weil.—p. 128.
Incarceration after Gastro-Enterostomy. S. Ssokoloff.—p. 136.
Autogenous Vaccines in Surgery. E. Breitkopf.—p. 145.

Secondary Enterostomy in Peritonitis and Ileus.—In cases which show the dangerous symptoms of intestinal paralysis after operations for peritonitis or ileus, Hübener advocates the performance of a secondary enterostomy. This method of treatment was used in thirty-two patients and frequently with good results. Ill effects were never observed.

Operative Treatment of Simple Fractures.—Nast-Kolb advocates surgical treatment in recent subcutaneous fractures with the following indications: (1) in fractures involving a joint and in separation of the epiphysis; (2) in transverse fracture of the forearm or the leg, and (3) in isolated fractures of the radius or the tibia, if an attempt at conservative treatment does not seem promising after five or six days. The generally accepted indications (fractures of the patella, injuries to a nerve, etc.) are not discussed.

134 : 153-318, 1925

**Tetanus and Protein Therapy. A. Buzello and K. Englmann.—p. 153.*
Syphilis of the Stomach. L. Ritter.—p. 180.
Roentgen Spectrography. H. Rahm.—p. 209.
A Teratoma of the Thyroid. H. Tammann.—p. 230.
Diagnosis of Liver Tumors in Children. H. Schmidt.—p. 235.
*Sequelae of Paraffin Injections. E. Rose.—p. 244.
Early Operative Treatment of Arthritis Deformans. Läwen.—p. 265.
*Osteomalacia of Sesamoid Bone. W. Müller.—p. 308.

Experimental Studies on the Treatment of Tetanus.—Guinea-pigs received a fatal dose of tetanus toxin and were then injected with different proteins and with tetanus antitoxin. Buzello and Englmann found that the animals treated with normal human or horse serum developed only a very mild disease, and recovered. Specific tetanus antitoxin, however, is more efficient. Other nonspecific proteins only delayed the manifestation of the disease.

Sequelae of Paraffin Injections.—Rose reports the cases of three women who had received injections of paraffin into the mamma tissue for cosmetic reasons. The injections had been made twelve, eighteen and twenty years, respectively, before these patients came to his notice. One patient complained of severe pain, one of pain associated with inflammation and necrosis of the skin, and the third patient had developed an adenocarcinoma. Rose has collected a further series of similar cases from the literature, and emphasizes that paraffin injections are likely to be very harmful to the patient and that their desired cosmetic effect is usually of only short duration.

Localized Osteomalacia.—Müller observed four patients with a process of osteomalacia in the sesamoid bone of the first metatarsal bone. The roentgen-ray picture shows a spotty, irregular appearance of the bone; the patient complains of severe local pain, and there is localized edema of the subcutaneous tissue. Rest and the prevention of mechanical irritation usually cure the disease. In persistent cases extirpation may be considered.

Monatsschrift für Geb. und Gynäkologie, Berlin

70 *: 243-360* (Sept.) 1925

Subcutaneous Emphysema During Childbirth. W. Oppenheimer.—p. 243.
Spontaneous Rupture of Cesarean Section Scar. Müller.—p. 249.
Disinfection of the Vagina. D. v. Ott.—p. 257.
Familial Jaundice in the New-Born. F. Hilgenberg.—p. *261.*
*Pathogenesis of Melena in the New-Born. J. Wieloch.—p. 269.
Isolated Tuberculosis of the Uterus. O. Gerich.—p. 278.
*Endocrine Function After the Menopause. Küstner.—p. 284.
Vaccine Therapy of Adnexitis. G. Gambarow.—p. 290.
The Results of Operations for Prolapse. H. Gänssle.—p. 295.
Adenofibrosis in Operative Abdominal Scars. W. Rosenstein.—p. 297.
Spontaneous Subsidence of Metastases After Chorio-Epithelioma. O. v. Küttner.—p. 303.
Indications for Temporary Roentgen-Ray Castration. Lüttge.—p. 306.

Pathogenesis of Melena in Infants.—Wieloch reports the case of a female infant who died under the symptoms of melena nine days after birth. Necropsy showed that an umbilical infection had resulted in thrombosis of the umbilical and portal veins.

Endocrine Condition After Roentgen-Ray Castration.—Küstner applied the Abderhalden reaction (modified by Lüttge and v. Mertz) to the serum of women in the natural menopause, of women after uterus extirpation, and of women after roentgen-ray castration. He found a positive reaction with ovarian proteins only in the last group, and he concludes that roentgen-ray treatment does not simply stop the ovarian function, but induces a pathologic endocrine function of the ovaries.

Münchener medizinische Wochenschrift, Munich

72 : 1495-1542 (Sept. 4) 1925. Partial Index

*The Anatomic Basis of Angina Pectoris. Oberndorfer.—p. 1495.
Roentgen Treatment of Tuberculous Iridocyclitis. Stock.—p. 1499.
The Prescription of Glasses. W. Jablonski.—p. 1500.
Forceps Delivery in Breech Presentation. H. Seidl.—p. 1501.
Treatment of Abortion. C. Becker.—p. 1504.
*Determination of Pulse Differences. Glintschikoff.—p. 1506.
Static Disturbance of Spine with Artificial Leg. Schanz.—p. 1507.
Quantitative Determination of Defensive Ferments. A. Lahmann.—p. 1507.
The Pathology of Enteroptosis. E. Treibmann.—p. 1509.
Disinfection of the Small Intestine. L. Bogendörfer.—p. 1511
Unsuccessful Operations for Abdominal Pain. A. Müller.—p. 1516.
"Psychotherapy by Organ Specialists." R. Schindler.—p. 1517. Reply. Krecke.—p. 1518.

Pathologic Anatomic Findings in Angina Pectoris.—The clinical entity called angina pectoris must be strictly differentiated from aortalgias and from cardiac asthma. In all cases of typical angina pectoris, Oberndorfer found the anatomic manifestations of circulatory disturbances in that part of the left ventricle which receives its blood supply from the descending branch of the left coronary artery, that is, apex, septum and sometimes anterior wall. Anemic infarcts, scar formations and secondary aneurysms were found in these locations. The openings of the coronary arteries may be reduced in size by syphilitic aortitis; the coronary artery may be the site of syphilitic processes and thrombi, but cases are found in which no such vascular pathology explains the degenerative changes in the heart musculature. This suggests the possibility that the vascular changes are sometimes only secondary to irregularities in the vascular nervous supply and that severe but temporary spasms of the artery may lead to anemic infarcts. Anatomic changes in the ganglion cells, connected with the innervation of the cardiac vessels, are as yet unknown, but may possibly be the primary cause of angina pectoris.

Difference of the Pulse in the Right and Left Wrist.—Glintschikoff observed that the phenomenon is more frequently and more easily noticed, if the two pulses are taken while the patient keeps his arms elevated.

Wiener klinische Wochenschrift, Vienna

38 : 977-1002 (Sept. 3) 1925

Sympathetic Nervous System and Heterochromia. W. Gilbert.—p. 977.
The Significance of Sacrocoxitis. R. Joachimovits.—p. 978.
*Resorption in Subcutaneous Tissue. F. Donath and B. Tanne.—p. 983.
*Rheumatism and Cutaneous Vaccination. G. Paul.—p. 984.
Spasms of the Neck Musculature. J. Rothfeld.—p. 988.
Pseudosclerosis. L. Dimitz and V. Vujič.—p. 991. Conc'n.
Orthopedics. H. Gocht.—p. 995.

How to Measure the Resorption from the Subcutaneous Tissue.—Donath and Tanne advocate for this purpose the subcutaneous injection of fluorescein-sodium because it is easily detected in the blood serum even in minute amounts. In order to exclude the factor of accumulation in liver and spleen, the injection is given near the wrist, and the blood is withdrawn from the ulnar vein on the same side.

Ponndorf Vaccination.—Paul treated 342 patients with arthritis deformans, chronic rheumatism, neuralgia, etc., according to Ponndorf's method, and obtained perfect cures in 64 per cent. and noticeable improvement in 30 per cent. of his patients.

Zeitschrift für Urologie, Leipzig

19 : 641-720, 1925

Surgical Treatment of Nephritis. M. Zondek.—p. 643.
*Disinfection of the Kidney Tissue. P. Rosenstein.—p. 656.
Illuminating Instruments. Haebler.—p. 668.
Substandard Urogenital Development. Orlowski.—p. 673.
Case of Double Ureter. J. Minder.—p. 680.
Case of Bilateral Hematuric Hydronephrosis. Nicolich.—p. 684.
Kidney Surgery. Kott.—p. 686.
*Nephritis Dolorosa. C. Schneider.—p. 700.

Disinfection of Kidney Tissue.—Rosenstein attempted a disinfection of infected kidneys in the following way: The kidney was first decapsulated; then, with a pointed cautery ten or twelve fine holes were made deep into the renal tissue, and the disinfecting fluid (Rivanol) was injected through a long and fine needle into the pelvis. After a certain pressure is reached, the fluid exudes through the cautery puncture holes. The author has treated four patients in this way, and believes that the procedure is harmless, and may save kidneys which otherwise would have to be removed.

Nephritis Dolorosa.—Schneider discusses in detail the clinical picture of this disease, and reviews the different opinions on the genesis of the characteristic attacks of pain.

Vestnik Mikrobiologii i Epidemiologii, Saratov

4 : 1-94, 1925. Partial Index

Contradictory Results of Oral Immunization. E. Korobkova.—p. 30.
*Vaccine Skin Reaction in Scarlet Fever. A. Sheltenkoff.—p. 34.
Modified Romanowsky Stain for Plasmodia. S. Moshkovsky.—p. 46.
*Bactericidal Property of Serums. A. Tseitlin.—p. 51.
Method for Staining Negri bodies in Rabies. E. Turevitch.—p. 71.

Vaccine Skin Test in Diagnosis and Prognosis of Scarlet Fever.—Sheltenkoff prepared a polyvalent vaccine with streptococci from throat, blood, ear, mastoid process, pleura and kidney of scarlet fever patients. The vaccine contained 100 millions of bacilli in 1 c.c. He injected subcutaneously 120 scarlet fever patients with from 0.1 to 0.5 c.c. of the vaccine, or with 0.1 to 0.2 c.c. intradermally. There was no local reaction in the first five days of the disease in any instance, but a local reaction usually developed by the fifteenth or twentieth day, and persisted much longer in grave cases with complications. The same injections in twenty-eight healthy children, aged from 6 to 15, induced a positive skin reaction the next day in 65 per cent. In twenty-two children, of the same age, mostly with eruptive diseases, other than scarlet fever, the reaction was positive the next day in 27 per cent. The prognosis was favorable with a positive reaction occurring during complications. He says that a negative reaction has no diagnostic import since it occurs also in other diseases; but a positive reaction, appearing in the first five days, positively excludes scarlet fever. The reaction was always positive in convalescents. Except slight headache in a few cases, no general reaction was noted with 700 intradermal injections of 0.1 or 0.2 c.c. of the vaccine.

Bactericidal Property of Serum from Man and Animals.—Tseitlin added to 0.5 c.c. of normal serum, active or inactive, 1 drop of a culture of bacteria diluted to 1 per thousand. Horse and rabbit serum displayed a notable ability to destroy the bacilli of anthrax and diphtheria, and a slight potency for typhoid bacilli. Sodium chlorid and bismuth subnitrate enhanced the bactericidal property of the serums still more. The serum from persons with a typhoid or typhus history also proved bactericidal. Goose serum presented considerable bactericidal power for the bacilli of anthrax and diphtheria; pigeon serum only when mixed with bismuth.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2 : 905-992 (Aug. 22) 1925

*Speech After Laryngectomy. H. Burger and L. Kaiser.—p. 906
*Intra-Ocular Pressure in Diabetics. E. Marx.—p. 918.
*Anatomic Findings in Mongolian Idiocy. A. Gans.—p. 922.
*Sanocrysin. H. Møllgaard.—p. 926.
Alleged Efficacy of Formic Acid in Therapeutics. Van Dam.—p. 942,

The Speech After Laryngectomy.—Burger and Kaiser analyze the phonetic conditions in a man whose larynx was removed on account of cancer three years before. His speech is so good that it does not interfere with his official telephoning from Amsterdam to Munich in reporting races, etc. The speech is closer to normal when his stomach is full. He wears the cannula only daytimes; it is hidden by his beard.

The Intra-Ocular Pressure in Diabetics.—Marx states that no change in the intra-ocular pressure could be discovered in two of five patients under insulin treatment, while in the others the pressure rose. There was no rise in two diabetics after ingestion of the 50 gm. of glucose which had rapidly increased the sugar content of the blood. He urges others to continue this research, examining the intra-ocular pressure at the same time the glycemia is recorded. There did not seem to be actual parallelism between them, but the general trend seemed to be the same.

The Anatomic Findings in Mongoloid Idiocy.—Gans says that he has found up to eighty different kinds of malformation in cadavers of mongoloid idiots. The brains show the brachycephaly formation of the Chinese brains examined by Kappers, only in a more pronounced form—"more Mongolian than the Chinese." The weight of the cerebellum was always subnormal, and a bunch of nerve tissue—grey matter—was found on the median side of the flocculus. This *tuber flocculi* has been described by others as heterotopia in the cerebellum. It has been noted in congenital myoclonia, and something of the kind was evident in a chimpanzee and an orang-outang Gans examined.

Present Status of Sanocrysin Treatment.—Møllgaard presented this report at a meeting of the Utrecht branch of the Netherlands Medical Association. He reiterated that this method of treatment is an attempt to produce a chemotherapy in the Ehrlich sense, and that it is only a beginning. But it is yielding good results in many cases, and exactly in those cases in which other methods of treatment fail. The present technic has materially reduced its dangers. The rapidity with which improvement follows is a special feature of the method. Distinct improvement has been observed in 52 per cent. of the 254 cases treated in the sanatoriums of Denmark to date, but comparatively few of the patients completed the full six months' course. The percentage is 83 in those that completed the course. The danger of shock has been reduced by waiting until the febrile reaction from one dose has entirely subsided before giving another. Another point is to wait for four days when no reaction is apparent, as delayed reactions have been observed, and this brought the reaction fever into conflict with the new dose. Albuminuria as an element in the febrile reaction is transient and harmless, but albuminuria later is regarded as a contraindication for the drug until the urine is normal again. The doses have been much reduced since the first. One group of internists give 0.5 to 1 gm. at six day intervals; another group, 0.05 to 0.25 with four day intervals. Albuminuria has become much rarer with these methods, which seem to give about equal results. In moderately severe and light cases, sanocrysin treatment may be regarded as relatively harmless, but there will always be danger in the very grave cases with high fever until an antiserum can be produced that will control the acute intoxication.

Norsk Magazin for Lægevidenskaben, Oslo

86 : 917-1044 (Sept.) 1925

*Tuberculosis of the Skin. E. Bruusgaard.—p. 917.
Senile Cataract and Senile Macula Changes. H. G. A. Gjessing.—p. 951.
*Poliomyelitis with Polyarthritis. Haakon Sæthre.—p. 966.
Seven Months' Fetus Carried Twenty-Four Years. H. Natvig.—p. 974.
Deformity of Heads of Twins from Mutual Pressure. Natvig.—p. 982.
Technic for Operation in Glaucoma. S. Holth.—p. 990.
*The Tonsils in Rheumatism. Reidar Gording.—p. 995.

Tuberculosis of the Skin.—Bruusgaard remarks that the swelling of glands back of the primary lesion usually gives the first clue to its tuberculous nature. The swollen glands are hard and movable at first, but they soon become soldered to their surroundings, and perilymphadenitis with proliferation of connective tissue develops in the depths. This differentiates it from a syphilitic lesion. He gives an illustrated description of several personal instances of primary tuberculous skin lesions in children. The course seems to be milder when the skin lesions are prominent. In these cases the skin may take an active part in the immunization process. He argues that tuberculosis passes through three stages the same as syphilis, but differs from the latter in its receptivity for repeated infection. Flaring up of old infection is more common, however, in which again it resembles syphilis. Protracted serial study of the skin manifestations of tuberculosis, in connection with simultaneous biologic immunity tests, he thinks will throw much light on tuberculosis in time.

Acute Poliomyelitis with Polyarthritis.—The girl, aged 16, developed multiple painful joint affections along with the peripheral paralysis. The polyarthritis improved under salicylates and disappeared the tenth week, but the spontaneous pains persisted for seven months, agonizing at times. The paralysis has persisted practically unmodified.

Rheumatism and the Tonsils.—Gording reports clinical and experimental research on 260 cases of joint and muscular rheumatism, all but 25 per cent. in women. A history of tonsillitis was known in only thirty of the 108 cases of primary chronic polyarthritis, and in thirty-four of the 107 muscular and nervous rheumatism cases. The average age at the onset in the tonsillitis cases in both groups was 27, and in the nontonsil cases 43 and 44. In the thirty-four cases treated with tonsillectomy, improvement followed in twenty-two but not in the others.

Ugeskrift for Læger, Copenhagen

87 : 709-724 (Aug. 13) 1925

*The Spinal Fluid in Sciatica. A. V. Neel.—p. 709.
*Tubercle Bacilli in the Spinal Fluid. K. A. Jensen.—p. 710.
Acute Leukemia in Young Woman. R. Thede.—p. 711.

The Spinal Fluid in Sciatica.—Neel declares that lumbar puncture is indispensable for a complete study of the etiology of sciatica. The findings were more or less pathologic in the eighteen cases he describes, but three of the patients had a history of syphilis.

Tubercle Bacilli in the Spinal Fluid.—Jensen obtained positive cultures with Petroff's medium in fifteen of twenty-two cases of tuberculous meningitis. It required only from ten to thirty-six days in fourteen of the cases. He prefers Bender's picric acid modification to the original Ziehl-Neelsen staining method. It materially shortens the time required for the microscope.

87 : 775-790 (Sept. 3) 1925

*Medical Treatment of Glaucoma. H. Larsen.—p. 775.
*Cancer or Tuberculosis. C. Gram.—p. 782.
*Changes in the Clinical Picture of Alcoholism. A. Wimmer.—p. 784.

Medical Treatment of Glaucoma.—This is Larsen's lecture in competition for the chair of ophthalmology. He says of subconjunctival injection of epinephrin—which Hamburger has found effectual in reducing the intra-ocular pressure to an extent that renders it amenable to miotics afterward—that it is still in the tentative stage, as likewise dry sodium chlorid by the mouth or vein. The reliance is still on miotics, but he reiterates that it is not enough to order the proper treatment; the important point is to see that the treatment is properly applied for as long as needed. This is particularly difficult when daily instillations have to be kept up for years, as the disturbances progress so insidiously in glaucoma. But conservative treatment is regaining ground more and more. Bright light and reading fine print aid in reducing glaucoma; conditions dilating the pupil should be avoided. Larsen has one patient who has had glaucoma in one eye for nine years. During the last seven he has had 2 per cent. pilocarpin instilled three times a day, and the tension keeps 26 mm., vision 6:6, although the disk shows some cupping. Van der Hoeve's patient was kept with normal vision in this way for fifteen years.

Cancer or Tuberculosis?—A previously robust man of 43 had a supposed primary tuberculous process in the testis removed. Three months later symptoms suggesting a spinal cord tumor or syringomyelia developed, and necropsy revealed numerous metastases from the primary lesion in the testis. No trace of tuberculosis was found. The main symptoms were from a large metastatic tumor in the sacrum.

Alcoholism in Copenhagen.—Wimmer brings statistics down to date. He ascribes the lower number of cases of delirium tremens to the high price of liquor under the 1917 law. From 321 cases in 1910, it dropped to twenty-four in 1923. The reduction is entirely in the group of casual drinkers. The cases of alcoholism now are mainly in persons with psychopathic degeneration, the feebleminded and epileptics, and the chronic habitual drinkers. This change in the character of the cases of alcoholism in institutions, since antialcohol legislation, is evident in France and Germany as well as in Denmark, he says. Total prohibition would not make the degenerates normal, and he thinks it is preposterous to inflict total prohibition on the entire populace merely to benefit the comparatively few chronic habitual drinkers.

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THE WASSERMANN REACTION AND THE PATIENT

RESULT OF ROUTINE TREATMENT OF ELEVEN HUNDRED AND SEVENTY CASES OF SYPHILIS *

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JOHN B. LUDY, M.D.
AND
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PHILADELPHIA

The treatment of syphilis is usually conducted in courses with intervals during which no treatment is given. The principle of the courses is that both arsenicals and mercurials are employed and in doses calculated to destroy *Spirochaeta pallida* without harming the patient.

Our method of treatment is the same for the several types of syphilis. To men we give 0.6 gm. of neo-arsphenamin at the first injection, followed by five weekly injections of 0.9 gm., making a total of 5.1 gm. To women, six weekly doses of 0.6 gm. are given, a total of 3.6 gm.

The arsenical course is immediately followed by the mercurial course, which consists of the intragluteal injection of 1 grain (0.065 gm.) of mercuric salicylate at weekly intervals for twelve doses. During the period of mercury medication we give potassium iodid by mouth in 10 grain (0.65 gm.) doses three times daily.

A rest of one month is then taken, the Wassermann test is done, and the same course of treatment repeated, except for the giving of a like total amount (3.6 gm.) of neo-arsphenamin to men and women. Iodids and mercury are given as in the first course.

After the completion of this course a rest of another month is given, at the completion of which the patient is reexamined, and a Wassermann test is taken. The clinical findings in conjunction with the serologic test now determine the patient's future treatment.

Attention is called to the fact that all our patients are examined by a competent internist, detailed from the medical service, at the commencement of treatment and at the completion of the second series of our course.

We tell all our patients that they must take forty weeks of treatment. This is something tangible, and the chances are that they are likely to take at least this amount of treatment either at our clinic or wherever they may migrate.

From April, 1923, to February, 1925, we treated in our clinic 1,170 cases, in 380 of which treatment was completed, and in 790, allowed to lapse. We numbered 134 cases of primary syphilis. Of these, two were suprapubic chancres, one was a chancre of the tonsil, one a chancre of the lip, and the chancre in the remainder was located on some portion of the genital tract.

In twenty-seven cases, eighteen weeks of treatment was completed. At the beginning of treatment twelve of these had a plus four, two a plus three, one a plus two, two a plus one and ten a negative Wassermann reaction. Dark-field examination of the chancre showed spirochetes in thirteen cases, was negative in three cases, and not done in eleven cases.

After eighteen weeks of treatment and a rest of one month, the Wassermann reaction was as follows: two cases, plus four; one case, plus three; one case, plus two; two cases, plus one; twenty-one cases, negative.

In seven cases, forty weeks' treatment was completed. The Wassermann reaction one month later showed: two cases, plus four; one case, plus one; four cases, negative. Two of these remained negative for one year and had negative cerebrospinal fluids. The remaining two were negative for six months.

In eight of the primary cases the patients had been treated prior to coming to our clinic. Four had less than 5 gm., and four had between 5 and 10 gm. of neo-arsphenamin.

It will be of interest to note at what period treatment in the primary cases lapsed: in fourteen cases after the first injection of neo-arsphenamin, in fifteen after the second, in nine after the third, in twelve after the fourth, in seven after the fifth and in eight after the sixth, making a total of sixty-five cases in which treatment lapsed during their arsenical course; in sixteen cases after the first injection of mercuric salicylate, in twelve after the third, in six after the fifth and in eight after the seventh, making a total of forty-two cases in which treatment lapsed during the mercuric salicylate course.

There were 134 patients with secondary syphilis. Of these forty-seven took eighteen weeks' treatment, sixteen took forty weeks and in eighty-seven treatment lapsed.

The Wassermann reaction of the forty-seven cases at the beginning of treatment was as follows: thirty-nine, plus four; three, plus three; three, plus two; one, plus one, and one, negative.

The Wassermann reaction taken one month after the completion of eighteen weeks of treatment showed: ten cases, plus four; one case, plus three; one case, plus two; one case, plus one; one case, plus minus, and thirty-three cases, negative.

The Wassermann reaction of those patients in whom forty weeks' treatment was completed showed: one case, plus four; one case, plus three; one case, plus one, and thirteen cases, negative.

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* From the Pennsylvania Hospital.

* Read before the Section on Dermatology and Syphilology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

Ten patients received previous treatment; eight, less than 5 gm., and two, between 5 and 10 gm. of neo-arsphenamin.

In the cases in this group treatment lapsed as follows: in twelve cases after the first injection of neo-arsphenamin, in eleven after the second, in fourteen after the third, in six after the fourth, in nine after the fifth and in six cases after the sixth, making a total of fifty-eight cases; in eight cases after the first injection of mercuric salicylate, in eight after the third, in seven after the fifth, in four after the seventh and in two after the ninth, making a total of twenty-nine cases.

TABLE 1.—*Wassermann Reactions of Three Hundred and Eighty Patients in Whom Treatment Was Completed*

1,170 { 380—treatment completed / 790—treatment lapsed

Primary: Dark field + in 13 / — in 3

	Plus 4	Plus 3	Plus 2	Plus 1	±	—	Total
Primary	12	2	1	2		10	27
Secondary	39	3	3	1		1	47
Tertiary	193	35	30	23	2	23	306
Total	244	40	34	26	2	34	386
			After 18 Weeks				
Primary	2	1	1	2		21	27
Secondary	10	1	1	1		34	47
Tertiary	4		18	139		145	306
Total	16	2	20	142		200	380
			After 40 Weeks				
Primary	2			1		4	7
Secondary	1	1		1		13	16
Tertiary			7	40		37	93
Total	3	1	7	51		54	116

We had 902 cases of tertiary syphilis. Of these 306 were given eighteen weeks of treatment; ninety-three, forty weeks; in 596 treatment lapsed. Of this number 166 cases were latent; forty-nine presented cutaneous lesions common to tertiary syphilis; twenty-three were cardiovascular; nine, osseous; thirteen, visceral; twenty-five, neurosyphilitic, and two, paretic; nine patients had tabes dorsalis. Five patients had optic atrophy, three had syphilitic stricture of the rectum and three had asthma.

The Wassermann reactions in the tertiary cases were as follows: 193, plus four; thirty-five, plus three; thirty, plus two; twenty-three, plus one; two, plus minus; twenty-three, negative.

One month after the completion of eighteen weeks of treatment, 113 cases became negative from positive; forty-one, weakly positive from strongly positive; eighteen, moderately positive from strongly positive; ninety-eight revealed no change, remaining positive; nineteen, no change, remaining negative; five became negative from a positive; four, strongly positive from weakly positive.

After forty weeks of treatment: thirty-four cases changed from positive to negative; seventeen, from strongly positive to weakly positive; seven, from strongly positive to moderately positive; thirty-two remained positive; three, negative. The previous treatment given was: twenty-two cases, up to 2.5 grains (0.16 gm.) of neo-arsphenamin; forty-six, up to 5 grains (0.32 gm.); twenty-seven, up to 7.5 grains (0.49 gm.); fifty-one, up to 10 grains (0.65 gm.). Seven patients were given from one to three mercurial injections.

Treatment lapsed in the following fashion: in ninety cases after the first injection of neo-arsphenamin; in fifty-nine after the second, in fifty-five after the third, in forty-seven after the fourth, in thirty-nine after the fifth and in sixty-one after the sixth, making a total of 351 cases in which treatment lapsed during the period of arsenical administration; in sixty-five cases treatment lapsed after the first injection of mercuric salicylate; in eighty-eight after the third, in forty-two after the fifth, in twenty-seven after the seventh, in nineteen after the ninth and in four after the eleventh, making a total of 245 cases in which treatment lapsed during the mercury course.

Negroes comprised 65 per cent. of the patients in the clinic; 20 per cent. were seafaring men, and the remaining 15 per cent. were Americans of rather recent immigration.

The seamen seldom were with us for more than one month. The negroes usually continued with us as long as their symptoms were distressing, after which they too disappeared. Our admission averages forty-eight new patients a month and we treat between 175 and 215 a week—our last treatment night the patients numbered 193.

We have no serious reactions to report. Several cases of vasomotor disturbance manifested by flushing of the face and tingling of the extremities, with dizziness and vomiting, were noted. We had two cases of dermatitis, one developing after the third injection of neo-arsphenamin and the other after the first mercurial injection. We report twenty cases of jaundice which developed between the third and the twelfth injections of mercuric salicylate.

After the first four doses of neo-arsphenamin, 37 per cent. of our patients with primary syphilis, 33 per cent. of those with secondary syphilis and 27 per cent of those with tertiary syphilis, a total of 344 patients, or 29 per cent., disappeared, the four doses of neo-arsphenamin totaling 2.4 gm.

This is certainly a regrettable feature, and it is a question whether this little treatment, though sufficient to cause the symptoms to disappear, is not worse than none at all. If there is ever a time for arsphenamin treatment, it is certainly during the first year.

TABLE 2.—*Lapses Following First and Second Courses of Treatment*

	Lapses Following Injections of Neo-Arsphenamin						
	1	2	3	4	5	6	Total
Primary	14	15	9	12	7	8	65
Secondary	12	11	14	6	9	6	58
Tertiary	90	59	55	47	39	61	351
Total	116	85	78	65	55	75	474
	Lapses Following Injections of Mercuric Salicylate						
	1	3	5	7	9	11	Total
Primary	16	12	6	8	.	..	42
Secondary	8	8	7	4	2	..	29
Tertiary	65	88	42	27	19	4	245
Total	89	108	55	39	21	4	316

In the majority of patients taking the mercurial course, treatment lapsed after the second time (62 per cent.), and the reasons given were discomfort caused by the injection Mercury is, of course, the time-honored remedy for syphilis. After holding first place for centuries it suffered a temporary eclipse in 1910 (arsphenamin eclipse); since then it has come back into favor, and many workers assert that mercury is after all the best specific for syphilis.

The truth lies between this view and that of 1910, when arsphenamin was all sufficient.

The question of moment is not the effect that mercury and arsenic have on the prognosis of syphilis; the question in my mind is what will be the result to the patient of a treatment that so rapidly controls symptoms and thereby makes for so many delinquencies.

SUMMARY

1. Of 1,170 cases of syphilis admitted for treatment, eighteen weeks' treatment was completed in 380, and forty weeks in 116; treatment lapsed in 790.
2. Of those patients in whom at least one course of treatment was completed, 244 originally had a strongly positive Wassermann reaction; seventy-four, moderately positive; twenty-six, weakly positive; two, doubtful, and thirty-four, negative.
3. After eighteen weeks of treatment the reactions of sixteen were strongly positive; of twenty-two, moderately positive; of 142, weakly positive, and of 200, negative.
4. Of the 116 in whom forty weeks' treatment was completed, three had a strongly positive reaction; eight, moderately positive; fifty-one, weakly positive, and fifty-four, negative.
5. Treatment lapsed in 474 patients during the course of neo-arsphenamin and in 316 during the course of mercuric salicylate.
6. A little more than one third of our patients were women. Only fifteen children were treated in this series.
7. More than one half of the patients (65 per cent.) were negroes, and many of the others were of the lowest social stratum and seafaring men.
8. It is indeed unfortunate that less than one third of our patients completed eighteen weeks of treatment and only one tenth forty weeks, notwithstanding a follow-up system of letters and visits made by a competent full time social service worker and her assistant.

EFFECT OF TREATMENT ON SPINAL FLUID IN CEREBROSPINAL SYPHILIS

CRITICAL ANALYSIS OF ONE THOUSAND SPINAL FLUID EXAMINATIONS *

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In 1919, one of us (U. J. W.) together with C. K. Hasley, in discussing the question of serologic cure in syphilis, expressed the belief that this did not necessarily parallel clinical cure, and that a positive Wassermann reaction in the blood in cases with a background of intensive treatment not only frequently accompanied clinical cure, but was also not inconsistent with the general good health of the person.

Our studies at that time were based on the comparison of various methods of performing the Wassermann reaction, and these studies tended to show that doubtful cases were either positive or negative, depending on various laboratory factors and technic, and on different types of reactions that are used.

Within the last two years, our observations on patients showing striking improvement in cases of cerebrospinal syphilis under tryparsamide, with spinal fluid changes that were practically unchanged by such treatment, have strengthened our belief in the nonparallelism in certain cases of biologic and clinical cure. Recent reports on the treatment of general paresis and other forms of cerebrospinal syphilis, not only with tryparsamide but also with malarial plasmodia, substantiate these findings; namely, that extraordinary clinical betterment may frequently take place with no corresponding change coincident with such betterment in the spinal fluid and blood.

Table 1.—*Clinically Improved After Treatment*

Type of Involvement	Number of Cases	Average Number of Punctures	Pleocytosis Reduced	Organic Solids Diminished	Gold Curve Reduced to Negative	Serology Returned to Normal
General paresis	16	10	5	4	5	0
Tabes dorsalis	9	6	5	2	2	1
Diffuse cerebrospinal syphilis (late)	29	8	10	9	3	3
Diffuse cerebrospinal syphilis (early)	19	6	14	10	15	14

In the present study, we offer an analysis of 1,000 spinal fluid examinations which have been made in 148 cases that we have been able to control, first, from the standpoint of clinical betterment or the reverse, and further, in which we have been able to check each test by a triple examination. In other words, every spinal fluid in this series of study has had two Wassermann reactions done, one with incubation of one hour checked against an eighteen hour incubation, and both of these checked against a Kahn precipitation test on the spinal fluid.

The majority of these cases have been those in which repeated lumbar punctures have been made in the course of the intensive treatment.

Of the 148 cases studied, thirty-nine are classified as paresis; twenty-seven, as tabes; nineteen, as early diffuse cerebrospinal syphilis, and sixty-three as the late type of a diffuse cerebrospinal disease. We have based this classification on clinical findings, rather than on serologic tests. The treatment that these patients have had has consisted of the intravenous administration of the various arsphenamin derivatives; intraspinal treatment employing the method of direct treatment, which has been used by us for the last fifteen years; tryparsamide; mercury ordinarily in the form of inunctions; potassium iodid by mouth, and, in a few selected cases, bismuth in place of mercury. The amount of treatment in as large a group as this naturally varied within wide limits. The largest amount of treatment is found in a patient who received a hundred intravenous treatments of arsphenamin during the past two years (not from us). On the other hand, in one of our cases, the intravenous administration was limited to as small a number as two injections, plus other forms of therapy.

On the average, leaving out the amount of treatment that the patients had received prior to their admittance to our service, all the patients of this group have had several months of intravenous treatment, either with arsphenamin or with tryparsamide, also intradural treatment, and all had received a considerable amount of mercury over several months. Twenty-six of the entire number have been under our observation and treatment for from two to five years.

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* Studies and contributions of the Department of Dermatology and Syphilology of the University of Michigan, service of Dr Udo J. Wile.

* Read before the Section on Dermatology and Syphilology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

In studying our cases from the point of view of a critical analysis of the effect of treatment on the biologic reaction in the spinal fluid, we have thought it advisable to group the cases into those in which improvement was seen, and into those in which no improvement was seen following treatment. As may be seen by Table 1, sixteen cases of general paresis in which an average of ten lumbar punctures had been performed showed a reduction of lymphocytic element in five, a slight reduction of organic solids in four, alteration of the gold curve in five, and serology changed to negative in not a single case.

Table 2.—*Cases Showing No Clinical Improvement After Treatment*

Type of Involvement	Number of Cases	Average Number of Punctures	Pleocytosis Reduced	Organic Solids Diminished	Gold Curve Reduced to Negative	Serology Returned to Normal
General paresis	23	8	8	4	3	0
Tabes dorsalis	18	7	7	6	3	2
Diffuse cerebrospinal syphilis (late)	34	4	8	6	5	4

In connection with the gold curve, this showed alteration, but not flat reduction; and as such is frequently seen in the period of remission with or without treatment, this finding is of no significant value.

To sum up the cases of general paresis, therefore, which had improved clinically, the only change of any note in the spinal fluid is the reduction of the pleocytosis in one third of the entire group. The effect, therefore, of treatment on the picture of the spinal fluid in this group, after eighteen months in which an average of ten punctures was made, may be said to have been negligible.

Turning now to the cases of tabes (Table 1), in nine cases puncture was done, on the average, six times; a reduction of pleocytosis occurred in five; the organic solids were diminished in two; an alteration of the gold curve was seen in two, and positive serology changed to negative in one. The changes, therefore, in tabes amost parallel those of general paresis. These patients had all markedly improved clinically, and their clinical betterment showed no striking change in the spinal fluid toward the normal status.

Turning now to the diffuse type of cerebrospinal syphilis occurring late or in the period of latency, we find that twenty-nine cases progressed toward clinical betterment or cure during the period of observation. Included in this group were cases of posterolateral sclerosis, spastic paraplegia and myelitis. In this group, puncture was done, on the average, eight times; reduction of the lymphocytes was seen in ten; reduction of the organic solids in nine; the gold curve was changed in fourteen, and reduced to normal in three, and the Wassermann reaction became negative in three.

Summing this up, we find here a slightly greater tendency toward a reduction to normal, paralleling a symptomatic cure under the influence of intensive treatment.

In the group of early acute involvement of the cerebrospinal system, we have nineteen cases that improved clinically under treatment (Table 1). In this group there was an average of six punctures; fourteen showed a marked reduction in the number of lymphocytes; ten showed a diminution of organic solids; the gold curve became flat in ten, and approached the normal in the remaining five. The Wassermann reaction in the spinal fluid became negative in fourteen of this group with all three tests.

From an analysis of the last group, it is evident that a greater degree of parallelism exists between serologic and clinical cure than pertains to the other three groups of cases. We are of the opinion that included in this group are several cases in which the changes in the spinal fluid are of as evanescent a character as is the exanthematous roseola. Many of the cases of this type show a considerable deviation from the normal in the spinal fluid during the exanthematous period of the disease. These changes in some cases are quite striking. They tend, however, to respond so readily to the general treatment directed toward the systemic infection that they may be regarded possibly as cerebrospinal enanthems. That they may bear a distinct relation in ineffectively treated cases to late more serious sequelae is more than a likely hypothesis.

Of our entire group studied, seventy-five cases showed no improvement clinically after treatment. In this group, however, are included some in whom clinical betterment was impossible to determine, as they were asymptomatic when first seen.

Of this number, twenty-three cases of paresis, in which an average number of eight lumbar punctures were made, showed a reduction (Table 2) of lymphocytes in eight, organic solids diminished in four, a reduction of the gold curve to negative in three, and a negative serology in not a single case with all three tests.

Eighteen cases of tabes of this group, having an average number of seven punctures, showed a reduction of lymphocytes in seven, a diminution of organic solids in six, a gold curve reduced to negative in three, and a Wassermann reaction reduced to negative in two. In thirty-four cases of diffuse cerebrospinal syphilis occurring late in the course of the disease, puncture was done, on the average, four times; pleocytosis was influenced by reduction in eight; organic solids diminished in six; a gold curve reduced to negative in five, and a Wassermann reaction made negative in four.

Table 3.—*Effect of Treatment in Cerebrospinal Syphilis During Period of Exanthem* *

Number of Puncture	Effect on Pleocytosis	Effect on Organic Solids	Change in Gold Curve	Serology Kahn	Serology Wassermann	Serology Wassermann
First	106	+	43210000000	++++	++++	++++
Fourth	13	—	21110000000	—	—	—
First	8	+	22110000000	++	+	+++
Fourth	2	—	00000000000	—	—	—
First	1,080	++++	33344320000	++++	++++	++++
Fourth	3	+	00000000000	—	—	—
First	17	+	12332100000	+++	++++	+++
Sixth	1	—	22110000000	—	—	—
First	125	+	11222100000	++++	+++	++++
Sixth	22	—	00000000000	—	—	—

* Fourteen cases studied, five typical examples shown.

From an analysis of this table, it is evident that a considerable degree of apparent change can occur in spinal fluid findings which is not paralleled by a corresponding clinical improvement. In the main, however, a general tendency toward fixation in the spinal fluid in all its abnormal findings is characteristic of this group as it is of the other.

As illustrating the remarkable effect of treatment in cases of early acute cerebrospinal syphilis occurring during the exanthem, we have studied fourteen cases, of which the five most typical are shown in Table 3. As may be seen here, practically all these cases showed seriously changed fluids at the outset. In three of this group at least, the changes were those ordinarily associted with severe parenchymatous disease. All of this group became completely negative incident to the systemic treatment directed to the disease, as well as to the special treatment directed to the nervous system.

A picture striking in comparison with this is seen in Table 4, which illustrates the effect of treatment on early cerebrospinal syphilis occurring after the exanthematous period or with so-called secondary recurrences. In this group, we are evidently dealing with a far more serious type of involvement, as may be seen by the fact that in not a single case was the serology of the spinal fluid in any way influenced after many months of treatment and observation.

In connection with all the cases here discussed, attention should be called to the fact that our findings are not established on the basis of single lumbar puncture, but are taken from the study of repeated spinal fluid findings. The relation of the group shown in Table 4, in which little or no effect is seen on spinal fluid findings, to later more serious sequelae, becomes more than a pertinent suggestion.

Table 4.—*Effect of Treatment on Early Cerebrospinal Syphilis After Exanthematous Period or with Recurrences*

Number of Puncture	Effect on Pleocytosis	Effect on Organic Solids	Change in Gold Curve	Serology		
				Kahn	Wassermann	Wassermann
First........	241	++	1110000000	++++	++++	++++
Third........	R.B.C.	±	1110000000	++++	++++	++++
First........	21	+	43333210000	++++	++++	++++
Seventh......	17	+	22332100000	++	++	++
First........	47	+	1110000000	++++	++++	++++
Fifth........	12	+	1111000000	++++	++++	++++
First........	23	++	44333210000	++++	++++	++++
Fifth........	9	+	11233321000	++++	++++	++++
First........	120	+++	33333210000	++++	++	++++
Fifth........	11	++	1110000000	++	++	++

CONCLUSIONS

1. Deviations from the normal in the spinal fluid, in acute cases of cerebrospinal syphilis occurring during the exanthematous period, tend to be reduced to normal, parallel with clinical improvement following intensive treatment.

2. This tendency toward normality in the abnormal spinal fluid is less noticeable in diffuse cerebrospinal syphilis occurring in the period of latency or with recurrences.

3. In cases of parenchymatous disease of the cerebrospinal system, notably in tabes and paresis, there is little or no simultaneous tendency toward a reduction of the diseased fluid to the normal, even in cases in which clinical improvement is striking.

4. The most easily influenced constituent of the diseased fluid in all types of cases is its lymphocytic content; less easily influenced, although still reducible in the acute cases, is the increase in globulin and albumin.

5. The colloidal gold curve may be reduced to normal in the early cases, but is influenced with difficulty by treatment in the later phases of the disease.

6. The least influenced by treatment in our series of cases is the Wassermann reaction. This tends to be reduced to normal in the very early or acute cases, but seems to be uninfluenced and more likely to be fixed in the late cases than any other of the changed constituents of the spinal fluid.

CLINICAL MANAGEMENT AND RESPONSE OF TABETIC PATIENT *

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A year ago we[1] reported the aggregate results secured in neurosyphilis by standard methods of treatment, including a soluble mercurial salt intramuscularly or inunctions, sodium iodid intravenously, and arsphenamin intravenously and intraspinally. These results are summarized for reference in Chart 1. Interesting observations on the general management of the neurosyphilitic patient, and his symptomatic response to treatment, could not be included in the previous paper for lack of space. These are now made the material for the present communication. The case basis for the charts here presented is in large part a series of 170 tabetic patients observed in the Section on Dermatology and Syphilology of the Mayo Clinic for from two to seven years.

Certain basic facts should be recalled in connection with the treatment of the tabetic patient. The pathology of neurosyphilis at the outset is meningeal. The prognosis of meningeal neurosyphilis is the best of the various types—excellent, in fact. The earliest *clinical evidence of neurosyphilis, in the tabetic-to-be*, is a rise in cell count in the spinal fluid. The logical preventive treatment of the tabetic-to-be begins with the detection, by routine spinal fluid examination, of his asymptomatic neurosyphilis during the secondary and latent periods. From 40 to 70 per cent. only represent the range of estimates, in the literature, of the proportion of definitely diagnosticated tabes dorsalis that has a positive blood Wassermann reaction. The detection and preventive management of neurosyphilis cannot therefore be left wholly to the finding of a positive blood Wassermann test.

Paresthesias, pains and sensory disturbances furnish, with pupillary abnormalities, the first clinical warnings of tabes in the large majority of cases. The involvement of the sensory spinal ganglion root by the meningeal inflammation (Nageotte, Richter[2]), which precedes the degenerative changes in the posterior columns of the cord, and basilar meningeal changes in the brain, furnish the pathologic background for these early warnings. The so-called "signs" of tabes, as distinguished from the symptoms, are degeneration marks, or scars, and as such cannot be either the ideal guides to the existence of the process, or the best indicators of its treatability or arrest. It is to be expected that the late tabetic patient will carry ineradicable evidence of the degenerative aspects of the process. Failure to restore pupillary mobility or lost reflexes, or to

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* Read before the Section on Dermatology and Syphilology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Stokes, J. H., and Shaffer, L. W.: Results Secured by Standard Methods of Treatment in Neurosyphilis, J. A. M. A. 83: 1826-1831 (Dec. 6) 1924.

[2] Richter, H.: Pathogenesis of Tabes, Schweiz. Arch. f. Neurol. u. Psychiat. 9: 65-74, 1921.

"cure" an ataxia, cannot be taken, therefore, as a fair test of the possibilities of modern neurosyphilotherapy.

The attention of the profession should therefore be focused consistently on the subjective symptomatology of early tabes, and when any of its leading points are developed in a case history, a quick search for early signs should be made as a routine. Lightning pains will then no longer pass as "rheumatism" or "neuritis" in the face of absent pupillary light reflexes or knee jerks; "slow" bladders be called "stricture"; gastric crises be operated on as gallbladder attacks; failing vision from optic atrophy be given glasses, and malperforans diagnosed "corns." A summary of our observations on the symptomatology of neurosyphilis, preponderantly of the tabetic type, is given in Chart 2.

The prognosis of neurosyphilitic symptoms in general depends on the ratio of inflammation to degeneration at the time treatment is begun. We know of no direct means by which such an estimate can be made with accuracy. Baughn and Stokes, in an unpublished study (1920), recognized the better prognosis of patients presenting a relatively high cell count in the spinal fluid combined with a second zone gold solution curve, and the finding has in general proved a useful, though by no means infallible, clue to the amenability of a given case to treatment. The difficulty of determining the vascular element in a neurosyphilitic complex reduces prognostic accuracy, and is the source of many unexpected accidents. The obviously degenerative complexes and signs, such as ataxia, deafness, and optic atrophy, make the poorest therapeutic response. On the other hand, the neurogenous or "cord" bladder, which one would be inclined to interpret *a priori* as the expression of a degenerative lesion, may show a surprisingly good restoration of function under treatment, while lightning pains, which one would be inclined to interpret as an irritative phenomenon associated with inflammation of the dorsal roots, may prove most intractable, and persist long after such signs of active meningitis as an increased cell count in the spinal fluid have disappeared. Symptoms dependent on basilar meningeal involvement, such as ptosis and diplopia, vertigo and headache, are in our experience quite responsive to treatment, possibly because a combination of rich blood supply and meningeal involvement makes them comparatively accessible.

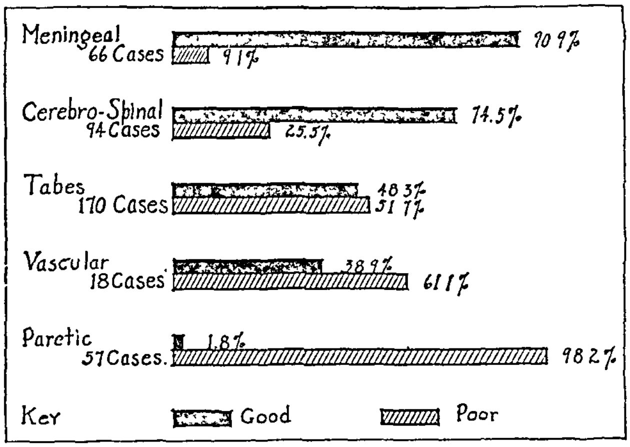

Chart 1.—Results in treatment of neurosyphilis.

The test of prognosis, then, lies in treatment itself, so to speak, and predictions should be made with caution, albeit in a hopeful tone. It is perhaps more necessary, however, to warn the older generation of physicians, if one may be so presumptuous, not to be too pessimistic, and to concede the value of selection and a preventive point of view in dealing with tabetic neurosyphilis.

The general methods of treatment responsible for the results summarized in Charts 3 to 8 may be characterized as follows: The patient is individualized to the highest degree if he is old, or his case is acute or late. He is systematized determinedly but not irrationally, if his case is early, his signs of recent development, his spinal fluid cell count not too high, or his symptomatic progress not too rapidly unfavorable. Arsphenamin is used in treatment, not neo-arsphenamin, except when the latter is employed in the advanced case for "tonic" effects. The Swift-Ellis-Ogilvie intraspinal therapy is often but not always a necessary part of the treatment, and produces results which, while not spectacular, are, to our minds, definitely superior to those obtainable in certain cases by other advocated technics. Intraspinal therapy is never resorted to without a previous trial of systemic treatment, amounting to one or two six or eight injection courses of arsphenamin. Mercury is used simultaneously with arsphenamin if the patient is in reasonably good condition.[3] It is used for from ten to thirty days before the arsphenamin in acute or rapidly progressive cases. Soluble and not insoluble mercurial salts are employed intramuscularly—by preference mercuric succinimid in one-sixth grain (0.011 gm.) doses five times a week for a course of thirty injections. Mercuric salicylate, the choice of the general practitioner, and calomel, the heroic mercurial, are seldom, if ever, used. The interim treatment between arsphenamin courses (three to four months' interval) is occupied by a rest period of one month, followed by forty 4-gram, 30 to 50 grain mercurial inunctions, and a rest period of another month, when the arsphenamin is again resumed.

The "paper control" of the case by examination of the spinal fluid before or after a course of treatment, or both in the earlier months of treatment, is insisted on as one of the best guides, though not an infallible one, to the progress of the case. A determined effort is made to reduce the spinal fluid to normal as indicated by the "four tests"[4] and to keep it there. But this effort is never pushed in a machine-like fashion, regardless of the complexion of the individual case. The value of complete rest from treatment, usually after the third course, is appreciated and utilized in bringing down to normal occasional "paper" findings and symptoms which persist after reasonably intensive treatment. All prolonged rest periods are, however, controlled by periodic neurologic examination as well as spinal fluid tests, the former being important in those patients who, in spite of negative serologic findings, continue their degenerative or symptomatic progress (seronegative tabes includes especially gastric crises, Charcot joint cases, and patients with associated cerebral vascular lesions). Iodid is used intravenously, synchronously with the mercurial in the form of a 10 per cent.

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[3] Our experience with bismuth in neurosyphilis does not warrant conclusions. Although the literature is becoming voluminous on the effects of treatment with bismuth in syphilis in general, the references to its value in tabes are few and the case series small. Saethre (Norsk. Mag. f. Lægevidensk **85**: 126-134 [Feb.] 1924) and H. Boesch (Schweiz. med. Wchnschr. **53**: 1059, 1923) report very favorable symptomatic improvement in the majority of seventeen cases. Artom (Policlinico **30**: 527-530 [April 23] 1923) reports negative results in three cases. Jeanselme (Presse méd. **32**: 245-246 [March 19] 1924) and his co-workers report the absence of bismuth in the spinal fluid, as shown by chemical analysis in a study of thirty cases. Foster and Smith (J. Nerv. & Mental Dis. Nov., 1924, p. 472) report the use of bismuth in twenty-three cases of tabes observed for from four to twelve months. They report improvement in gait and subjective symptoms, especially lightning pains, in the majority of cases.

[4] Wassermann test on 0.2 and 1 c.c., globulin estimation, cell count and colloidal test.

sterile solution of sodium iodid, 10 gm. daily five times a week, after two or three days' preliminary administration of the drug by mouth to detect idiosyncrasy. This method was adopted as a result of the studies of Osborne[5] on the increased concentration of iodid in the spinal fluid after intravenous administration, and does away with much of the gastro-intestinal load under which the patient labors who is at one and the same time receiving arsphenamin, mercury and iodid in large doses.

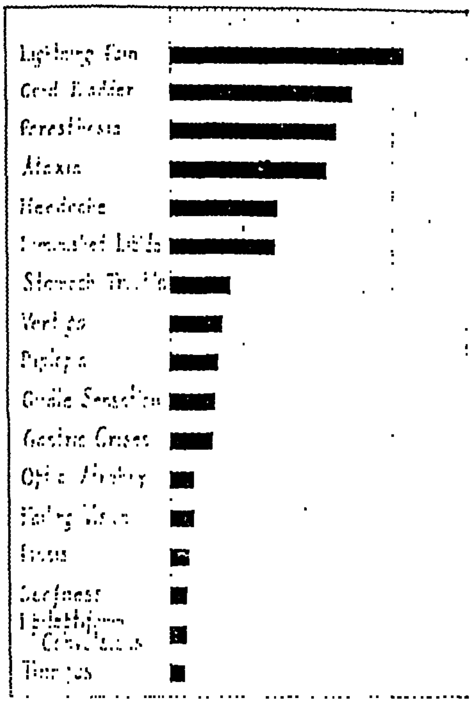

Chart 2.—Relative frequency of common symptoms in neurosyphilis as a major complaint. One space equals three cases.

We recognize distinctly a resistance-building or conserving factor in the management of the tabetic patient which sometimes transcends in its importance the mere use of antisyphilitic medicaments. Foremost of the conserving measures we would place attention to the tabetic kidney and bladder, whose function is often gravely impaired. Measures to drain by catheter an atonic infected bladder in order to improve renal function, and to restore proper bladder habits by self-training and effort, may be actually life-saving in their value. The removal of foci of infection may rid the patient of a predisposing cause of persistent lightning pains, relieve an embarrassed kidney, and improve a general debility. The reversal of intestinal flora, by *B. acidophilus* and lactose, the use of the laxative diet, fluids, oil enemas, and reduction of protein in the food, may bring about substantial results by controlling the atonic constipation and intestinal putrefaction of the late tabetic patient. In the field of direct drug therapy, we would emphasize the value of the prolonged course of small doses of neo-arsphenamin, in raising the general tone of the late or aged tabetic patient. A moderate dose, from 0.3 to 0.5 gm. of this drug, weekly, has often much more effect through its stimulation of the general resistance mechanism of the patient than do much larger doses. The use of small doses of neo-arsphenamin in early tabetic patients, however, without suitable reinforcement with mercury and iodid, is to be deprecated as predisposing to occasional serious relapse and reactivation of the process when treatment is temporarily suspended.

SYMPTOMS

The following symptoms have been selected from the series shown in Chart 3, as deserving brief special discussion.

"Stomach Trouble."—This symptom, whose prominence among the complaints of neurosyphilitic patients was brought out in a study by Stokes and Brown,[6] responds with gratifying promptness in a high proportion of cases (Chart 4), and indirectly, through restoration of appetite and weight gain, promotes the general favorable progress of the patient. No special management is required to bring about the effect. It should be emphasized that the symptoms may be due to duodenal ulcer, and that they may recur following remission, without any apparent connection with the progress of the neurosyphilis. In such cases, after diagnosis, operation may be required for relief.

Lightning Pains.—Most patients can be assured of some degree of amelioration of this symptom, the proportion of fair, good and excellent results aggregating 73 per cent. (Chart 5). Excellent results, however, were rated at only 16 per cent. The notorious persistence of lightning pains after the apparent arrest of the degenerative process in some cases is one of the trying features of late tabes. We noted occasional relief after courses of mercuric succinimid and sodium iodid when other treatment seemed without effect. The most unexpected measures seem at times to afford temporary relief, including even ultraviolet irradiation (O'Leary). The most definite predisposing factor is infection, and patients who are usually free of pains suffer exacerbations if they develop colds, bronchitis and other causes of rise in temperature. The removal

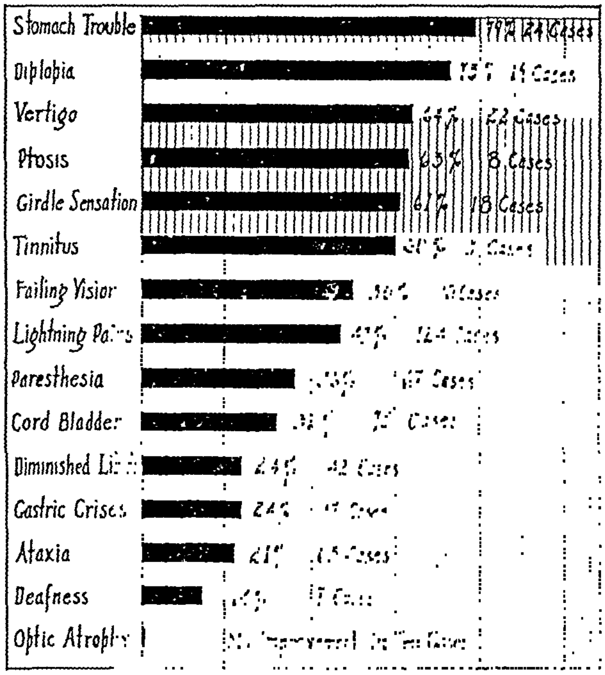

Chart 3.—Percentage of good clinical response secured in various symptoms of late neurosyphilis. One space equals 2 per cent.

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5. Osborne, E. D.: Pharmacology and Therapeutics of Iodids, J. A. M. A. 79: 615-617 (Aug. 19) 1922.

6. Stokes and Brown: Two Hundred Syphilitic Patients Whose Chief Complaint Was Stomach Trouble, Am. J. M. Sc. **164**: 867-884 (Dec.) 1922.

of focal infections sometimes, but by no means always, has a striking effect. Lightning pains are a valuable clue to early relapse, and the patient in whom they have disappeared under treatment should be warned to make even a mild recurrence the signal for a reconsideration. The relation of the pains to infections probably explains the value of change to a warm climate for the elderly tabetic patient who is housebound by repeated severe attacks during the winter months. In two or three obstinate cases observed by us, stripping of the coats of the femoral artery (Leriche operation) has failed to afford relief.

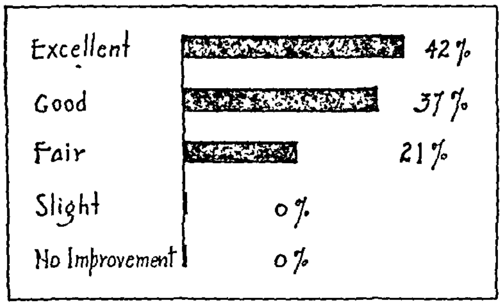

Chart 4.—Clinical response of stomach trouble in twenty-four cases.

Cord Bladder.—The breakdown of the tabetic patient's urinary excretory mechanism begins with a gradually developing atony of the bladder, which may fail to attract the patient's attention, and be missed by the examiner in taking the history. It is a not uncommon misconception that dribbling means an empty bladder with relaxed sphincter, rather than an overfilled bladder, as is usually the case. The collection of the urine in an atonic bladder, the back pressure and consequent diminished renal function, may come on so insidiously that, as in one case in our experience, a uremic attack may be the first warning that the excretory mechanism had broken down. The first duty of the physician, therefore, in assuming charge of a tabetic patient, is to ascertain his blood urea content and his phenolsulphonephthalein elimination. The amount of residual urine may be determined under suitable conditions, but in an uninfected and only mildly atonic bladder, there should be some hesitation in assuming even the slight risk of infection inherent in catheterization. The response of the nervous mechanism of the atonic bladder to treatment is probably considerable. In most cases the effect is, however, concealed in part by the additional relief afforded the overdistended and inflamed organ by irrigation and catheterization. In the seventy-three cases studied in this series with the aid of the Urologic Section of the Mayo Clinic, it was found that the improvement depends largely on the grade of involvement when treatment is begun. Mild and moderate degrees of cord bladder show excellent and good results in approximately 70 per cent. of the cases. In severe grades of involvement, good results were secured only in approximately 15 per cent. of the cases. The results for the group as a whole (Chart 6) were good in 32 per cent. and fair in 29 per cent. We have seen a residual urine of 22 ounces (650 c.c.) reduced to one-half ounce (15 c.c.) with practically complete restoration of bladder function in the course of a year of combined systemic and local treatment. It is important to teach the tabetic patient the importance of bladder control, and to have him make a systematic effort to empty the bladder spontaneously at least once each day. Squatting, crouching, stooping and other postures may assist, with the sound of running water, heat over the bladder, evacuation in the hot sitz-bath, etc. Practice may restore much more than is expected at the outset. Too early resort to the catheter, and self-catheterization should be avoided. In very late cases with a high blood urea, gradual emptying of the infected bladder followed by a continuous catheter drainage (night and day) may bring about a slow improvement in renal function and a corresponding gain in the patient. Stab drainage in one case restored a tabetic "wreck" in his sixth decade to the efficiency of his forties. Urologic consultation should be called in doubtful cases.

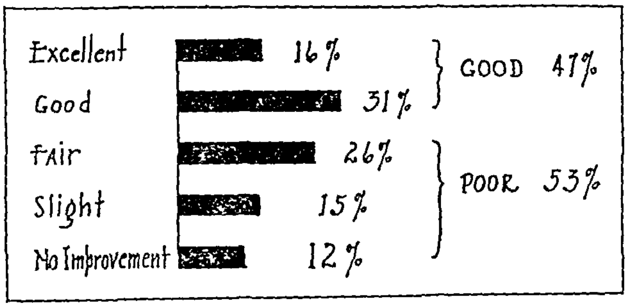

Chart 5.—Clinical response of lightning pains in 124 cases.

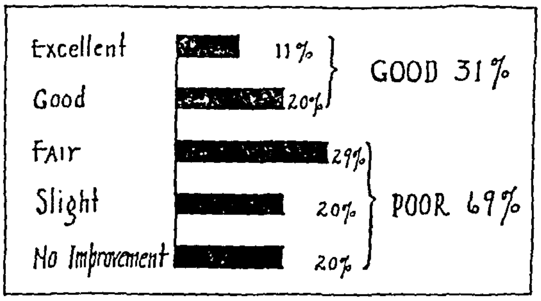

Chart 6.—Clinical response of cord bladder in seventy-three cases.

Gastric Crises.—Of seventeen cases, complete recoveries were secured in only two during prolonged observation (Chart 7). On the other hand, marked amelioration is possible in 24 per cent., and no improvement occurred in 23 per cent. The usual response consists in a reduction of the severity and length of the attacks with or without an increase in intervals between attacks. This degree of improvement may restore a previously incapacitated person to self-support. The combating of the neurosis, the fear and hopelessness that seem to be psychic accompaniments of the condition are often as difficult as any phase of the treatment. The cardinal error of the profession in dealing with gastric crises at the present day is in the use of morphin. If the physician in ordinary practice could be induced never to give a hypodermic injection for abdominal pain without testing the pupils and knee jerks, there would be a worth-while improvement in the outlook of the average patient with gastric crises. The combination of morphinism and gastric crises is as distressing and refractory as anything in medicine. McFarland[7] described the symptomatic relief afforded in our experience by the intrarectal use of chloral and sodium bromid, each 30 grains (2 gm.), in 1 ounce (30 c.c.) of water. If the room is darkened and the buttocks are elevated, relief often follows within a few minutes, and in an hour the patient may fall asleep. Chloral delirium, while a rare complication, must be watched for after repeated doses. The intelligent patient may in some cases be taught to manage his own crises in this fashion. Washing the stomach occasionally shortens an attack, and bizarre devices, such as "stretching" the patient by bending him backward over the end of the bed, are said occasionally to stop an attack. Our experience with procain injection about the splanchnic nerves has not, on the whole, been favorable. While the occasional attack is reduced in severity, the pain relieved, or even occasional aborting of the attack produced, the effect is not invariable, uniform or lasting. The patient under treatment for gastric crises should be systematically encouraged to make up the weight loss, which occurs during attacks, by gorging himself just short of dyspepsia in the intervals. Not a moment should be lost when the vomiting ceases. The most nourishing foods should be taken in abundance, for the general outlook of the case depends to no small degree on the patient's ability to keep ahead of his threatened cachexia until treatment shall have taken effect. In occasional cases in which the crisis has become an almost continuous affair of morning vomiting, feeding through the duodenal tube during the free interval of the day has produced a gain in weight sufficient to turn the tide for the time being. The bringing on of an attack by an arsphenamin injection, and its aborting with epinephrin intramuscularly, are now fairly familiar. Intraspinal treatment may likewise bring on an attack. Tryparsamide, tried in several of our cases, produced what appeared to be temporary remissions in two or three instances, but in the more intractable cases was without effect, either tonic or specific, and seemed even to increase the severity of the attacks.[8]

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[7] McFarland, A. R.: Palliative Control of the Gastric Crises of Tabetic Neurosyphilis by the Rectal Administration of Chloral Hydrate and Sodium Bromid, J. A. M. A. 78:786 (March 18) 1922.

Ataxia.—In sixty-three cases, 21 per cent. obtained good results, and 79 per cent. fair or poor results (Chart 8). This low proportion of improvements evidences the late degenerative character of the symptom. So poor a prognosis does not necessarily hold, however, for we have seen ataxic patients who could scarcely "flop" about the office, walk so well in six months that we could not recognize them when they passed us in the corridor. This is especially true of the early cases in young patients who are carefully prepared with mercury and iodid and not given arsphenamin too promptly or in too large doses. The definitely ataxic patient, while he may not always be able to command the facilities of a Fraenkel gymnasium, can be helped a good deal under ordinary circumstances by being taught to substitute his eyesight for his sense of motion and position, and to look at his feet as he walks. This, with a restoration of confidence and some exercises at planting his feet on painted foot-marks, will help him considerably. The psychic factor in ataxia is quite apparent to any considerable experience, and it must be realized that the patient who flounders in one's presence may make a much better showing in a crowded street where he loses his self-consciousness. Patients with marked ataxia should not, in general, be subjected to avoidable spinal punctures, for in occasional cases there seems to be increased difficulty afterward.

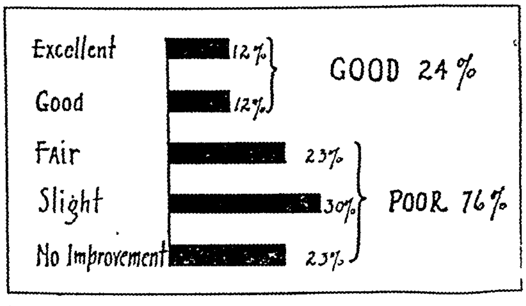

Chart 7.—Clinical response of gastric crises in seventeen cases

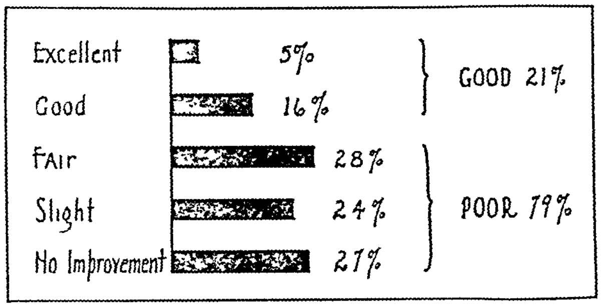

Chart 8.—Clinical response in ataxia in sixty three cases.

Optic Atrophy.—In ten cases of the primary type which fell within the requirements of the series here discussed, we were unable to record a single improvement. Occasionally, in the very earliest cases, it seems possible to arrest the process, but the far more usual rule is a steady progress of the impairment, definitely accelerated at times, we believe, by the use of arsphenamin. We are inclined to depend on mercuric succinimid intramuscularly and iodid by mouth for a long preparation (two months). Patients with beginning primary optic atrophy should be prepared, while they still have vision, for the possibility of losing it, so that they may remain at least partially self-supporting. The invincible optimism that seems to accompany the state, or the euphoria of the paretic, of course, makes this difficult.

The function of individualization in the management of tabes does not consist, as sometimes would seem to be the case, in finding excuses for not treating the patient, but rather in a judicious alinement of all resources, in his behalf. Reduction of serologic findings to normal is a goal to be sought with intelligent persistence. Not the least of the important general measures is a restoration of the patient's confidence in the possibility of a considerable degree of relief and a return to reasonable economic efficiency. Encouragement, quite as much as drugs; rest, but not too much of it; protection from hardship, exposure, worry, infections; and (too often forgotten) study of the family for evidence of conjugal or inherited infection, are vital parts of management.

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[8] No attempt has been made to summarize experience with section of the posterior roots in the treatment of gastric crises (Foerster operation), since opinion and practice as to either technic or value have not crystallized. Our own observations do not warrant conclusions. The procedure at present is one of last resort.

Emergency Fund for Prevention of Disease.—In order to be in position to combat the spread of cholera, yellow fever, smallpox, plague, typhus fever, trachoma, infantile paralysis, Rocky Mountain spotted fever, and influenza, Congress provides an emergency fund of approximately half a million dollars annually for expenditure by the Public Health Service in threatened or actual epidemics.—Kerr, J. W.: *Pub. Health Rep.* **40**:1681 (Aug. 14) 1925.

SIGNIFICANCE OF NORMAL SPINAL FLUID IN CASES OF NEUROSYPHILIS *

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In 1921, Solomon and Klauder[1] reported on the various types of neurosyphilis in which there may be completely negative spinal fluid findings with or without clinical symptoms. Pardee,[2] Fordyce and Rosen,[1] and others have also called attention to this phenomenon. These reports and our own confirmatory observations have established the fact that neurosyphilis may be clinically inactive or progressive in the presence of normal spinal fluid. The fact that the fluid findings reversed to normal as a result of treatment or the patient's own resistance does not seem to have much bearing on the clinical picture. In referring to the normal spinal fluid, we include only those cases that were within normal limits in all four tests on the fluid. A cell count of 7 or more was considered positive.

Table 1 (Group 1).—*Effect of Treatment on the Persistent Symptoms After the Spinal Fluid Became Negative* *

	Much Improvement	Slight Improvement	No Change
Primary optic atrophy	1	0	5
Rectal crises	0	1	0
Trophic ulcers	1	0	2
Gastric crises	6	8	6
Nerve deafness	2	4	2
Loss of potentia	4	2	8
Lightning pains	4	8	10
Paresthesias	2	3	3
Bladder incontinence	5	4	9
Numbness of hands and feet	4	1	7
Ataxia	0	1	2
Hemiplegia	0	2	1
Nervousness	3	0	1
Diplopia	5	1	0
Weakness	6	1	2

* Symptoms given in order of persistence, from above down

Solomon and Klauder called attention to the fact that the vascular types of neurosyphilis are, as a rule, negative in the spinal fluid, and that other types, such as tabes dorsalis, cerebral gumma, cerebral nerve palsy, spastic paraplegia, syphilitic epilepsy and syphilitic psychosis, may often be clinically progressive with negative tests of the spinal fluid.

Serologically negative neurosyphilis has been recognized for several years, but few examples are reported in the literature. It has always been difficult to decide whether antisyphilitic treatment should be continued in such a case, or whether the patient should be permitted to rely entirely on his own resistance mechanism for future protection from the disease. Certain syphilologists do not treat asymptomatic serologically negative but clinically positive neurosyphilis because of the negative reports on the spinal fluid. Others believe that the patient with asymptomatic neurosyphilis, who has had a complete reversal of the spinal fluid as a result of treatment, will not continue to progress clinically.

Only three of the many phases of the disease in which the spinal fluid was negative will be discussed in this paper; they are grouped as follows: (1) clinical evidence of neurosyphilis with negative serologic findings as a result of treatment; (2) clinical signs of neurosyphilis, but negative serologic findings without treatment, and (3) asymptomatic neurosyphilis with favorable reversal of findings in the spinal fluid with treatment. All the patients were observed for a period of at least eighteen months after the fluid became normal; the average period of observation was thirty-two months; the longest was six years. The patients studied had received at least one series of six arsphenamin injections and a corresponding amount of mercury. Paretic patients were not studied.

The three groups were studied with particular reference to the type of neurosyphilis; the symptoms that persisted after the fluid became negative; the influence of continued antisyphilitic treatment on these symptoms; the new symptoms that developed after the spinal fluid had reversed; the improvement or progression in the signs of the disease after the serologic reversal; the contrast between the changes in the spinal fluid and the serum Wassermann reaction; the evidence of the visceral progress of the disease in the presence of the neurologic arrest, and the influence of continued treatment in each group as a whole.

One hundred and thirty-five case records were selected for study from a review of more than 2,000 records of neurosyphilitic patients. No effort was made to estimate the frequency of the serologically negative neurosyphilitic case in the various anatomic types of neurosyphilis, since such an estimate did not appear significant here. The good results in the treatment of neurosyphilis in its early manifestations have been reported by Fordyce,[4] Wile,[5] Stokes and Shaffer,[6] Moore,[7] and others. It is impossible to estimate accurately the total percentage of good results obtained by the various authors. We believe, however, from a review of the literature and our own experience, that complete serologic arrest is obtained in approximately 50 per cent. of all types of neurosyphilis, exclusive of the paretic type, in which adequate treatment is given. In a small percentage of these, there is only partial relief from symptoms, even though the serologic result has been excellent. We are firm advocates of the intensive modern treatment of neurosyphilis when recognized early in its course, and wish to avoid the impression that this report is in any way derogatory to such treatment.

Table 2 (Group 1).—*Symptoms Which Appeared After the Spinal Fluid Became Normal* *

1. Charcot joints
2. Numbness of hands and feet
3 "Neurosis"
4 Optic atrophy
5 Trophic ulcers
6 Incontinence
7 Gastric crises
8 Paresthesia of trunk
9 Ataxia (upper extremities)
10 Girdle sensation
11. Loss of potentia
12 Ataxia (lower extremities)
13 Lightning pains
14 Numbness of the mouth
15 Insomnia

* The influence of continued treatment on these symptoms was nil

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* From the Section on Dermatol[illegible] Mayo Clinic

* Read before the Section on [illegible] at the Seventy Sixth Annual Session of [illegible] Association, Atlantic City, N. J., May, 1925.

[1] Solomon, H C, and Klauder, J. V.: Neurosyphilis with Negative Spinal Fluid, J. A. M. A. **77**: 1701 1706 (Nov 26) 1921.

[2] Pardee, I. H.: Observations on the Diagnosis of Neurosyphilis, New York M J. **115**: 507 (May 3) 1922

[3] Fordyce, J. A, and Rosen, Isadore: Laboratory Findings in Early and Late Syphilis, J. A M. A **77**: 1696 1700 (Nov. 26) 1921

[4] Fordyce, J. A.: Intraspinal Therapy in Neurosyphilis, Am. J. Syph. **3**: 337-375 (July) 1919.

[5] Wile, U. J, and Marshall, C. H.: A Study of the Spinal Fluid in 1,869 Cases of Syphilis in All Stages, Arch. Dermat. & Syph **3**: 272-278 (March 21) 1921.

[6] Stokes, J. H, and Shaffer, L W: Results Secured by Standard Methods of Treatment in Neurosyphilis, J. A M. A. **83**: 1826 1831 (Dec 6) 1924

[7] Moore, J. E The Cerebrospinal Fluid in Treated Syphilis, J A M. A. **76**: 769 772 (March 19) 1921

GROUP 1. CLINICAL EVIDENCE OF DISEASE, WITH NEGATIVE SEROLOGIC FINDINGS AS A RESULT OF TREATMENT

In Group 1, there were sixty-one cases in which active symptoms of the disease continued after the spinal fluid became negative. Each patient had at least two neurologic examinations and two spinal fluid tests after the spinal fluid became normal, and was observed for a period of more than eighteen months. We believe that the symptoms and signs persisting after the fluid has become negative are the result of the residue of the degenerating process in the nervous system, and that this "scarring" may produce signs and symptoms as active as the original syphilitic process.

In this group are forty-eight patients with tabes dorsalis, four with parenchymatous neurosyphilis, two with combined sclerosis, one with meningoparenchymatous syphilis, three with parenchymatous vascular syphilis, one with meningovascular-parenchymatous syphilis, and two with an indeterminate type of neurosyphilis. All these patients were in the early or only moderately advanced stages of the disease.

The majority of these patients had thorough antisyphilitic treatment in an effort to reverse the findings in the spinal fluid; fifty-five had treatment classified as "excellent," five as "good," and two as "poor."[8] Certain of the symptoms which were given as the chief complaint at the time of admission to the clinic persisted after the fluid became negative. They are given in the order of frequency (Table 1).

Table 3 (Group 1).—*Changes in the Neurologic Signs After the Fluid Became Normal*

Change in location and degree of hyperesthesia in three, some improvement in one
Further reduction in the deep reflexes in four; became more active in three
Ataxia progressed in two
Pain sense more extensive in six; less marked in one
Temperature sense more extensive in five; less marked in two
Degree of positive Romberg increased in two; lessened in one
Vibration disturbances increased in four; diminished in one
Astereognosis more marked in six; improved in none
Pupil reaction reduced to light in one
A total of twenty cases

An effort was made to determine the new symptoms that developed after the fluid became negative. Changes in the nervous system producing these symptoms were probably present before the findings in the fluid reversed, but they were not complained of by the patient. The symptoms are given in the order of the frequency of their appearance (Table 2).

There were twenty cases in this group that received more than one complete neurologic examination two years after the fluid became negative; in twelve of the cases, definite progress of one or more of the neurologic signs was manifested, while in eight, such progress did not occur (Table 3).

Serum Wassermann Reaction.—A study of the blood Wassermann reaction in this group shows further evidence of the uncertainty of the blood serum Wassermann reaction as a guide to diagnosis or treatment, because in forty-two of the sixty-one cases, the blood Wassermann reaction was negative throughout the period of observation; in nine, the reactions were positive at the onset but reversed to negative under treatment; in six, they were negative to start with, and changed to positive after the first series of treatment and then reverted to negative again (provocative?); while in three, after remaining negative for periods of more than three years, they reversed to positive. In only one case in the group did the reaction remain positive throughout an observation period of four years.

Table 4 (Group 2).—*The Influence of Treatment on Persistent Symptoms*

	Improvement	No Change
Loss of weight	7	1
Lightning pains	14	11
Ataxia	5	2
[illegible]	2	0
[illegible]	0	2
[illegible]	2	2
Gastric crises	6	5
[illegible]	2	5
[illegible]	0	1
[illegible]	3	8
[illegible]	1	2
[illegible]	3	5
[illegible]	0	2
[illegible]	1	2
[illegible]	1	3

Symptoms are given in order of frequency, from above down

Cardiovascular Syphilis.—Of the thirty-four patients in the group who were specially examined for evidence of cardiovascular syphilitic disease, twenty-seven were normal, two had moderate hypertension; one had arteriosclerosis; one, hypertension; one, endocarditis, and only two had definite syphilitic aortitis that was recognized after treatment had been started. This is quite in contrast with the frequent association of cardiovascular syphilis and active neurosyphilis. Both of these patients were observed over a period of years and showed no progress in the aortic disease. No doubt, if this group came to necropsy, a higher percentage of cardiovascular disease would be demonstrated, but it is significant that so few of them showed definite clinical evidence of heart disease on special cardiovascular examination.

The Somatic Results of Treatment.—Of the patients who were well treated, 24.5 per cent. showed no symptomatic improvement, 37.75 per cent. recovered incompletely and were still incapacitated, and 37.75 per cent. manifested definite symptomatic arrest of the disease as the result of the continuation of treatment after the negative result in the spinal fluid had been obtained.

Table 5 (Group 2).—*Symptoms Appearing During Course of Treatment*

	Cases
Tingling of feet and hands	2
Ataxia	2
[illegible]	2
[illegible]	2
[illegible]	2
[illegible]	1
Cardiac decompensation	1
Ptosis of eyelid	1
Diplopia	1
Dysphagia	1
Convulsions	1
Nervousness	1
Trophic ulcer	1
Progressive changes in pupillary reflexes	1
Headaches	1

GROUP 2. CLINICAL EVIDENCE OF DISEASE, BUT NEGATIVE SEROLOGIC FINDINGS WITHOUT TREATMENT

Group 2 comprises twenty-nine patients who when first seen showed active symptoms, definite clinical evidence of neurosyphilis and a normal spinal fluid without history of previous treatment. Twenty-six of the patients had tabes dorsalis, one had parenchymatous vascular syphilis, one had syphilitic combined sclerosis, and one had juvenile tabes dorsalis.

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[8] This classification was made for the sake of convenience. "Excellent" indicates that more than eighteen arsphenamin treatments with corresponding amounts of mercury and at least six intraspinal treatments were given. "Good" signifies that between twelve and eighteen arsphenamin treatments with a corresponding amount of mercury and less than five intraspinal treatments were given. All less intensive treatment is classified as "poor."

Treatment was well carried out because of the active symptoms that compelled "excellent" treatment of twenty-five patients, while only three received "good" treatment, and one "poor." An estimate of the effect of continued treatment in the patients' general condition showed that thirteen were definitely benefited, eleven were improved in one or more of the main complaints, and five were not helped (Tables 4 and 5).

Changes in the Neurologic Signs.—In eleven cases, repeated neurologic examinations were made at intervals of more than eighteen months; in five, definite progression in the signs was found, while in six, no change was observed. The most frequently noted improvement in these signs was in the pain and temperature sense in the lower extremities, while the augmented reduction of the deep reflexes was the common progressive sign of retrogression. In two cases, all the signs progressed, while in a few, nystagmus, ptosis of the eyelids and ataxia progressed markedly.

Cardiovascular Syphilis. — There were thirteen patients in this group who had a special cardiovascular examination, of whom only one showed clinical evidence of syphilitic aortitis, nine were completely negative, and one had hypertension, one arteriosclerosis and one endocarditis (nonsyphilitic).

Serum Wassermann Reaction.—There were fifteen of the twenty-nine cases whose blood showed a negative Wassermann reaction at the first examination and throughout the course; in three, the reaction was negative at the start but reversed to positive and back to negative again with continued treatment; in eight, the reaction reversed from positive to negative; while in three the reaction stayed positive throughout the period of observation.

GROUP 3. ASYMPTOMATIC NEUROSYPHILIS WITH FAVORABLE REVERSAL OF THE FINDINGS IN THE SPINAL FLUID UNDER TREATMENT

There were forty-five patients in Group 3. They were observed over a period of more than two years, during which time the spinal fluid and the nervous system were repeatedly examined. Three patients developed lightning pains, and two, girdle pains and paresthesia around the waist, but none developed neurologic signs sufficient to warrant a diagnosis of neurosyphilis. The frequency with which a tendency to neurasthenia appeared was the outstanding characteristic of the group. One patient had previously undergone a special cardiovasular examination for evidence of syphilitic heart disease with completely negative results, fully developed aortitis appearing eighteen months after the fluid and blood had become normal; while another patient who had syphilitic aortitis showed no progress in the disease, as indicated by the findings on three subsequent examinations. We were unable to demonstrate any progress in the visceral syphilis in the patients of this group other than in the aorta.

The Wassermann Reaction of the Serum and Spinal Fluid.—In fifteen cases, a negative Wassermann reaction at the onset of treatment was not altered throughout the course of treatment. Of the remaining thirty with positive reaction in the serum, the blood showed reversal before the spinal fluid in nine; in five, reversal was simultaneous; in thirteen, reversal of the serum reaction followed six or more months after the reversal in the fluid, and in three, it became negative with that of the fluid but later reversed to positive and remained so.

The treatment in this group was classified as "excellent" in thirty-eight, and "good" in seven.

TABLE 6 (Case 3).—*Observations in a Case of Tabes Dorsalis and Charcot Ankle* *

	Cerebrospinal Fluid				Treatment						
						Mercury					
Date	Wassermann	Nonne	Cells	Colloid Reaction	Arsphenamin, Gm.	Rubs	Succinimid, Intramuscularly, Grains	Salicylate, Grains	Hyrgol with Creta, Grain	Intraspinal Swift-Ellis-Ogilvie	100 C.c. 10 per Cent. Sodium Iodid Intravenously
2/26/18	—	—	6	0	7.2	....	16	..	..	0	0
8/17/18	—	—	3	0	...	.... 80 (at home)	..	..	..	..	..
1/ 3/19	+++	+	9	0000010000	...	.... 40 (at home)	..	..	..	..	..
7/ 5/19	+	+	7	0111222000	...	....	..	..	..	..	..
9/ 6/19	—	—	2	0	2.0	....	..	6	..	5	..
12/30/19	—	—	7	...	...	....	..	..	..	..	..
1/27/20	—	—	1	...	1.2	....	..	..	1	3	..
5/27/20	—	—	4	...	...	....	..	..	..	..	..
6/29/20	—	—	6	...	1.2	.... No treatment at home	..	..	0	3	..
8/22/22	+++	+	27	023300000000000	(Showed symptoms of paresis)						

* A man, aged 42, had definite signs of tabes dorsalis complicated by a Charcot ankle. The clinical improvement was very marked with the exception of the Charcot ankle, which later necessitated amputation. Evidence of mental degeneration was noted at time of recurrence.

COMMENT

The types of neurosyphilis that have been known to pursue an unfavorable clinical course in the presence of negative tests in the spinal fluid and serum have been mentioned. They are not rare in the syphilologic clinic, as Stokes and DesBrisay[9] showed that 7.5 per cent. of a well treated group were serologically arrested yet symptomatically progressive. Solomon and Klauder[10] have suggested the use of the provoked spinal fluid reactions as a means of determining the activity of the neurosyphilis. We are in accord with them in that we believe a provoked result is from time to time noted in the fluid reactions of patients under treatment for neurosyphilis. It would also seem that this reaction is more the result of the provocative influence than a so-called "Herxheimer reaction."

Grindon[11] and Hazen[12] have suggested that continued treatment may maintain a positive reaction in the blood serum. We have observed a similar phenomenon in the spinal fluid, on a number of occasions, in patients who have received intensive treatment over a period of several years. It will be advisable to observe these patients for some time before endeavoring to draw conclusions from this observation.

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[9] Stokes, J. H., and DesBrisay, H. A.: Observations on the Course of 413 Cases of Untreated or Inadequately Treated Syphilis, Am. J. Syph. 8: 558-568 (July) 1924.

[10] Solomon, H. C., and Klauder, J. V.: Provocative Reactions in the Cerebrospinal Fluid in Neurosyphilis, Arch. Dermat. & Syph. 2: 679-691 (Dec.) 1920.

[11] Grindon, Joseph, in discussion on Stokes and Shaffer (Footnote 6).

[12] Hazen, H. H., in discussion on Stokes and Shaffer (Footnote 6).

Stokes and Shaffer have shown that 67 per cent. of the well treated cases of neurosyphilis have shown serologic reversal, while only 48.3 per cent. of a similar group have shown both serologic and clinical evidence of arrest. In other words, approximately 50 per cent. of these well treated cases do not show complete response to treatment. In our series, it was noted that 70 per cent. of the group in which the symptoms did not improve with the fluid, but in which treatment was continued, showed an appreciable response to the continued medication. In Group 2, the continued therapy relieved the symptoms in only 45 per cent. It would seem justifiable, therefore, to continue treatment in the face of positive symptoms irrespective of the negative serologic findings.

The estimated percentage of positive findings in the spinal fluid in tabes dorsalis varies from 52 to 100 in different clinics, and the number of cases of asymptomatic neurosyphilis varies from 18 to 48 per cent. in the same institutions.

Table 7 (Case 4).—*Observations in a Case of Serologically Negative Neurosyphilis* *

	Cerebrospinal Fluid				
Date	Wassermann	Nonne	Cells	Colloid Reaction	Blood Wassermann
6/18/20	—	—	1	....	—
7/10/22	—	—	3	....	—
4/ 3/25	42———	+	27	000000000000000	1

* In the examination of a woman, aged 29, suffering from renal lithiasis, in 1920, it was discovered that the pupils were unequal and markedly reduced to light, but normal for accommodation. The knee jerks and the Achilles reflexes were absent. No sensory disturbances were noted. The patient's husband gave a definite history of syphilis, but as he was ill with active pulmonary tuberculosis, his spinal fluid was not tested. The patient returned again in 1922, when the fluid was negative, and in 1925, it was positive. The neurologic findings at this time showed that the disease was advancing.

An important group, the "burnt out" or imperfect group, in which no symptoms were manifested at the time of examination or on subsequent visits, were excluded from this report. The diagnosis in this group is essentially a neurologic problem aided at times by the recognition of dermatologic or visceral evidence of syphilis. The neurovascular type which predominates in the serologically negative neurosyphilitic group was likewise omitted from this study.

The fact that a single negative reaction in the spinal fluid in cases of clinically positive neurosyphilis is not evidence of arrest of the disease has been noted a number of times. The symptoms may persist as they were at the time the reaction in the fluid was reversed, or the patient may progress to complete incapacity or manifest new signs and symptoms. We were unable to recognize any criteria in the tests of the spinal fluid that would act as a prognostic sign. The type of complaints and the patients' general condition, as noted over a period of six months or more, seemed to be the best index. Not only was it noted that the symptoms would progress in the face of negative serologic findings, but there were ten cases in the first and second groups, after the reaction of the fluid had been negative for two years or more, in which there was a reversal to positive and back to negative again under treatment. This observation confirms that of Solomon and Klauder. These reversals may or may not be associated with exacerbation and progression of the clinical symptoms. In the interpretation of such findings, it is necessary, of course, not to mistake changes in the serologic technic for evidence of the return of activity in the cerebrospinal fluid. In a number of cases encountered during this study, the Kolmer modification of the Wassermann reaction gave positive results, although the former technic had given negative findings for several years. Not only the Wassermann reaction but also the cell count should help to indicate renewed activity. The increase in the cell count, after a period of negative findings in the fluid, may be more significant than a reversal of the Wassermann reaction or its modifications. The globulin and colloidal gold tests, or a modification of the latter, seemed to follow rather than precede such recurrences. In our present state of knowledge, we are not justified in discharging, as arrested, neurosyphilitic patients who have had one negative spinal fluid test or who are not free from symptoms. The single negative report on the spinal fluid is of no more significance than a single negative Wassermann reaction in the serum which, as is well known, does not overrule a clinical suspicion of syphilis. It would seem to us that repeated tests of the spinal fluid at stated intervals of approximately a year are advisable (Tables 6 and 7).

The effect of continued treatment for the relief of the persistent symptoms in the group of patients with serologically negative reactions without previous treatment was attended with definite benefit in 45 per cent. of the cases. The results of continued treatment, however, were more encouraging in the group whose spinal fluid reactions reversed as a result of medication, in contrast to those cases in which reversal was the result of the patient's resistant forces; 70 per cent. of the former showed some improvement.

Treatment of neurosyphilis showing negative serologic reactions included more than the direct attack on the syphilis; the infected bladders must be cared for by lavage or drainage. The intravenous use of arsphenamin probably has a definite effect in controlling the frequently associated pyelonephritis. The dietetic control of the nephritis or nephrosis, with discontinuance of the mercurial preparations, has been of material help. It has recently been called to our attention that the prostate, and also the teeth, tonsils and uterus, may be the seat of the focal infection that aggravated the neuritis of tabes dorsalis. Again, hypertension and cardiovascular disease may account for some of the complaints. We have nothing new to offer in the treatment of patients with negative serologic tests who suffer from persistent gastric crises other than chordotomy, as suggested by Frazier,[13] which seems to hold out more hope than any form of treatment that has been offered thus far. Paravertebral injections of local anesthetics have afforded only temporary relief, while the injection of alcohol has been unsuccessful. Particular care of the patient's own resistant forces is very necessary, and for this, neo-arsphenamin in very small "tonic" doses has been useful. Rest, mental and physical, is almost as essential in the treatment of this phase of neurosyphilis as it is in tuberculosis.

CONCLUSIONS

1. Attention is again called to the fact that neurosyphilis may be clinically progressive in the presence of completely negative serology.

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[13] Frazier, C. H.: Surgery of the Spine and Spinal Cord, New York, D Appleton Co., 1918, pp. 695-720.

2. Continued treatment for the symptoms that persist after the spinal fluid has become negative is attended with benefit in 70 per cent. of the patients whose spinal fluids reversed to normal as a result of treatment, and in 45 per cent. of those in whom the spinal fluid reversed without treatment.

3. A single negative spinal fluid report in the clinically positive but asymptomatic neurosyphilitic is not sufficient evidence to warrant the discharge of the patient as cured.

4. Spinal fluid examinations in addition to complete physical examinations should be made at yearly intervals, or thereabouts, in the neurosyphilitic patient whose spinal fluid has reversed to normal as a result of or without treatment.

5. Although our present knowledge on the subject of the significance of negative and positive spinal fluid findings in neurosyphilis is far from complete, we are justified in seeking to obtain a reversal of the serology to negative by the present day modern methods of treatment, bearing in mind that a small percentage of the well treated cases will have persistent symptoms irrespective of the serologic results.

6. The type and severity of the persistent symptoms, when considered in conjunction with the patient's general condition, offer the best guide as to the value of continued treatment in the serologically negative neurosyphilitic.

7. Because the serology has been found to reverse to positive, and the clinical signs of the disease develop in the asymptomatically and serologically negative neurosyphilitic, it hardly seems justifiable to allow these patients to rely solely on their own resistance mechanism, something about which we know very little.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KNOWLES, LUDY AND DECKER; WILE AND KEIM; STOKES AND SHAFFER, AND O'LEARY AND NELSON

Dr. Harold N. Cole, Cleveland: Dermatologists have not stopped at treating diseases that go no deeper than the skin. Possibly a few things could be learned from the work that some dermatologists are carrying on. These papers show the necessity of making an early diagnosis in these cases of syphilis of the central nervous system. The therapeutic results are much better if treatment is started early. When the medical schools will give more time to dermatology and syphilology, emphasizing the importance of the early diagnosis and treatment of syphilis, then, and then only, shall we see less syphilis of the heart, of the spinal cord, and so on, ad nauseam. Practically all central nervous system syphilis has its inception during the first year or two of the disease. Dr. Wile's report shows that their best results were achieved in the early stages of the cerebrospinal involvement, and we all have found that if we get the cases in the early years the disease is easy to deal with; but as the older symptoms come on, the bladder symptoms, the crises, the paralyses and so on, the fewer the cases that will be benefited.

Dr. J. E. Moore, Baltimore: The point Dr. Cole brought out has interested us for many years; namely, the treatment of early syphilis. For this reason I was particularly interested in Dr. Knowles' paper because I have been trying to find out what has happened to our cases of primary and secondary syphilis treated by a method unlike that of Dr. Knowles', but depending on treatment carried out continuously and for a long period of time. We find, as Dr. Knowles does, that many uncooperative patients do not fulfil our treatment requirements. During the last five years we have been making intensive social efforts to get back to the clinic the patients treated during the past ten years, and have succeeded in studying 417 of them. In all these we have records not only of repeated physical and neurologic examinations, but also of routine examinations of the spinal fluid. From the standpoint of the amount of treatment given, we have divided our material into four groups, the first including those patients who had eight or less doses of arsphenamin, with no mercury. Of these, 10 per cent. were cured and 90 per cent. were not. In the second group, those who received two courses of arsphenamin with mercury, approximately 70 per cent. developed recurrences. Those in the third group, with three courses of arsphenamin plus mercury, show approximately 60 per cent. cured. In the fourth group, those who followed our ideal course of treatment, 80 per cent. are cured and 20 per cent. have had recurrences. It is fair to say that included in this last 20 per cent. are a considerable number of cases that might be regarded as reinfections rather than recurrences. Under the best methods of early treatment available in Europe and in this country, I feel that, given a cooperative group of patients, it is possible to achieve a permanent cure in about 90 per cent. of the cases. If adequate early treatment could be carried out everywhere, it should be perfectly possible to cut down materially the incidence of the late grave complications of the disease.

Dr. Julius Grinker, Chicago: I am gratified to learn that the dermatologists have learned more neurology and are doing better work in neurosyphilis than the neurologists themselves are doing. More than that, the field of neurosyphilis has been gradually slipping away from the neurologists because we are following up our cases, and thus the end-results do not reach the neurologists as frequently as formerly, which, of course, is much better for the patient. The general practitioner should have availed himself of this symposium. If he had, mistakes would be prevented. Some points, particularly those regarding the negative Wassermann reactions, are absolutely unknown to the general practitioner. We are often referred to patients from physicians with the statement, "This man has a negative Wassermann reaction; therefore I know he has no syphilis," but on clinical examination we find evidences of tabes, or cerebrospinal syphilis or even paresis. The average practitioner of today, aside from the dermatologist and neurologist, still believes that the negative Wassermann reaction means "no syphilis." I think the correct knowledge should be disseminated, so that patients will be treated who need treatment most.

Dr. F. J. Eichenlaub, Washington, D. C.: Two things in the symposium impressed me. Dr. Knowles' statistics about clinic patients are very interesting and they parallel, in great part, my own experience. As a matter of fact, they parallel more or less our experience with private patients. Some little time ago I figured out how many patients in a large free clinic in the District of Columbia took enough treatment, and the percentage was less than 10. Dr. Cole's point about the early diagnosis of syphilis is very important and should be stressed, but I do not believe that in the lifetime of any of us the stressing of this point will make a very material difference in the amount of late syphilis seen. I do not believe so because of what Dr. Knowles brought out, that so few of the patients, even when the importance of this matter is impressed on them, will take sufficient treatment to prevent the late complications. One has many interesting experiences. I had one patient who had five clinical recurrences of syphilis and yet the importance of long continued treatment was not impressed on him. Even physicians who surely should know the value of continuing treatment have abandoned their treatment after a short time. My experience does not agree with that of Drs. Stokes and Shaffer regarding optic atrophy. We have quite a number of referred cases, and many of these patients are materially improved and their optic atrophy is checked by the routine treatment, and more often still by the addition of routine intraspinal therapy.

Dr. John H. Stokes, Philadelphia: Dr. Eichenlaub's remarks suggest that failure to draw the distinction between primary and secondary optic atrophies may explain a portion of the improvement sometimes claimed for optic atrophy in general. Secondary atrophy following chronic inflammatory changes in the optic nerve responds in accordance with the general rule that the amount of improvement is determined by the proportion of active inflammation to degeneration. The typical pale, sharply defined disk of primary atrophy has a much more unfavorable prognosis. We feel a little inclined to apologize for the therapeutic detail in our paper. This emphasis was intentional, however, and we wish to reiterate that a mastery of detail is necessary for successful treatment in late syphilis. Routine treatment may be successful, but individualization is much more often needed. Those who review our results should realize that the attempt to reduplicate them, for example by a substitution of mercuric salicylate for mercuric succinimid, will not yield the desired results. We do not offer our technic with any intentional egotism, for better methods will undoubtedly be devised. We merely state the definite results secured by a definite procedure, one that should be reduplicated if judgment is to be passed on it.

Dr. J. Frank Schamberg, Philadelphia: Dr. Grinker said that the dermatosyphilologists were perhaps contributing more to syphilis than the neurologists. I think this is due to the fact that the dermatosyphilologist has been pursuing syphilis as a morbid entity from the time of its inception to the end, and this has necessitated a number of studies on the spinal fluid and the blood. I believe the dermatosyphilologist has been more successful because he has not started out with the extremely pessimistic opinion of the neurologist. The neurologist and psychiatrist has seen the cases beyond hope of correction. We have had a series of theses which represent, in a sense, a sort of therapeutic inventory. We have heard what one may hope to accomplish. We have learned that in the early meningitic forms the cases are more hopeful and in the late cases less and less hopeful. I cannot refrain from reiterating the statement that the treatment of neurosyphilis is chiefly prophylactic; that in order to prevent the late complications the patient must have early, vigorous treatment, followed by serologic control. In the early treatment our methods should be conservative, the more radical methods being reserved for the bad cases. I believe that many patients will get well without intraspinal medication. Many will get well under intravenous treatment, and in even some of the late cases recovery will occur under such treatment. I have in mind a patient who has been under my care for fifteen years, coming with late syphilis of the meningovascular type, with Argyll Robertson pupils. That man is now in good health. So, we must not take too pessimistic a view of meningovascular syphilis. We must remember that there are distinct limitations to the use of the metallic arsenicals. They do not reach the nerve tissue in sufficient amount to bring about an effect. Nonspecific therapy may be of great aid. Our attention has been called to the value of malarial infection in the treatment of paresis. While nothing definite can be given at this time, I think the consensus of opinion is that it permits longer remissions and return to vocational activity than any treatment that has been brought to us for many years. As time goes on and we are able to study our cases earlier, and see them in their incipience, more of them can be arrested. All cases of parenchymatous syphilis begin with meningitic involvement. I think we should look forward with research and study to the possibility of achieving better and better results.

Dr. Henry F. Stoll, Hartford, Conn.: I have sometimes been impressed with how much easier it is to make a tabetic patient with an infected bladder come back for treatment for the tabes, than to persuade him to have the bladder washed. I hope some plan of treatment may be suggested for the patients with negative blood and spinal fluid tests. Should they have regular courses of treatment, for ever, or should one wait for them to develop symptoms?

Dr. Henry H. Hazen, Washington, D. C.: There is one very serious problem in the treatment of syphilis, and that is the dispensary patient who will not consent to take the full course. That becomes very largely a public health problem. About the only thing we can do for these people who drift off after from ten to eighteen weeks is something like the following: Have the patients visited by a visiting nurse in the first week. If the nurse has a sufficient amount of intelligence she can get a fair idea as to whether that patient is apt to discontinue treatment. If he is the sort who will probably leave the dispensary it seems an excellent idea, instead of giving him a course of eight arsphenamin injections, to be followed by mercury, to give that patient at least twelve injections of arsphenamin combined with mercury. I wonder whether it would not be wise to undertake these rather radical methods in the case of patients we are apt to lose.

Dr. Frank C. Knowles, Philadelphia: This subject is tremendous. Naturally, only one phase of the subject has been discussed. I think we have to follow a routine treatment if we give in the neighborhood of 10,000 injections a year. Fortunately, at the Pennsylvania Hospital we have enough physicians to study our cases carefully. We have advocated a routine treatment of syphilis, but that does not mean that other drugs and other methods are not used. We have used foreign proteins, colloidal mercury, bismuth and various other preparations. We use, however, special methods of treatment usually in consultation and cooperation with the neuropsychriatric group at the hospital. If there are special indications for treatment, we follow these out. Certain patients cannot be given arsenic; certain cases of neurosyphilis are made worse by it. What I mentioned in my short article are simply the results on completed tests and in the routine treatment. It is not the advocacy of routine treatment in all cases, but careful study in all cases, and if there is a contraindication for this treatment or a special indication for any other treatment we follow it out. Our clinic is organized with six physicians, two full-time social service workers, a trained nurse, and an orderly.

Dr. Loren W. Shaffer, Philadelphia: The use of bismuth in treatment was not taken up. It has been used for a period of two years but we are not yet in a position to make any final statement as to its place. The references to the literature are in the final paper. As to the duration of treatment, we feel that lifelong observation is preferable to continuous treatment. It is practically impossible to continue treatment throughout life, and if a patient will not cooperate, it is better to wait for some symptom and then treat that drastically rather than to treat subthreshold throughout life.

Dr. Paul A. O'Leary, Rochester, Minn.: I agree with what Dr. Shaffer has said in regard to Dr. Stoll's question. Frequent routine examinations, particularly of the cardiovascular and nervous systems, when taken in conjunction with the active symptoms, offer a guide as to the need for continued treatment after the serologic findings have become negative. I agree heartily with all that has been said regarding the early treatment of syphilis and neurosyphilis, but the group that does not respond to these modern methods of treatment needs special consideration. There is a tendency at present to use fever therapy in addition to mercury and arsphenamin for the treatment of these resistant cases. Whether malaria or a foreign protein is to accomplish the desired effect we as yet do not know, but it has opened up an additional therapeutic attack which in our present state of knowledge is worthy of further trial.

Therapeutic Value of Light.—I have pointed out that there is good evidence for believing that light, mustard leaves, and mustard gas ultimately produce their effects in the same way; therefore it might be argued that those who are tolerant or supersensitive to the one stimulant should be so also to the others. This is definitely not the case, and the reverse is not uncommon, though negroes are tolerant to all three; this suggests that some other factor may be necessary to produce erythema apart from the light. This factor might well be the Bence-Jones quinoidine, since it is known that skins of the supersensitive are particularly fluorescent, and that fluorescent substances under the influence of light exhibit remarkable properties, such as the artificial production of supersensitiveness. This view is entirely different from that expressed by Dr. Peacock, speaking recently in the name of Professor Russ and himself, in which he regarded the fluorescence of the skin surface as a protective phenomenon, though on what evidence I do not know, except, of course, that outside the body fluorescent substances absorb ultraviolet rays.—Dixon, W. E.: Discussion on the Therapeutic Value of Light, *British Medical Journal* **2**:499, Sept. 19, 1925.

THE GASTRO-INTESTINAL SYMPTOMS OF NEUROSYPHILIS

DIFFERENTIAL DIAGNOSIS [*]

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In the sixty years since Charcot [1] first described the gastric crisis of tabes, increasing recognition has been given to syphilis as a cause of gastro-intestinal disturbance. Only in the last ten years, however, have we emphasized the less typical gastro-intestinal symptoms of neurosyphilis, and learned to appreciate the difficulties in the way of diagnosis.

Edsall,[2] in 1914, reported fifteen cases of gastric disorder, diagnosed ulcer or cancer and only later proved syphilis of the central nervous system. Operations were performed in four of the earlier of these fifteen cases.

Nuzum,[3] in 1916, studied 1,000 cases of tabes, and found mistaken diagnoses responsible for ninety-seven unnecessary laparotomies. In this group nineteen useless operations were performed for supposed gallstones, nineteen for supposed ulcer, eighteen for appendicitis, eleven for salpingitis, seven for adhesions and nine for exploration. His article stresses the unwisdom of making a diagnosis of intra-abdominal pathologic conditions unless tabes is excluded.

Woltman,[4] last year, reported 120 cases of gastric crisis in which sixty-three futile operations had been performed: twenty with reference to the appendix, fourteen on the gallbladder and twelve on the stomach. Some of these patients had been submitted to repeated operations.

Crohn,[5] and Full and von Friedrich,[6] however, have pointed out that peptic ulcer is of not infrequent occurrence in the tabetic patient, and have discussed the possibility that vagus degeneration may predispose the tabetic patient to ulcer of the stomach or duodenum.

Our purpose here is to show how great may be the difficulty in deciding between peptic ulcer and tabes, even when both conditions are in mind, and to emphasize the care necessary in interpreting roentgen-ray findings when these two conditions are to be differentiated.

A study has been made of fifty cases of neurosyphilis in which gastro-intestinal symptoms were prominent. All the patients were suffering from a late degenerative type of the disease, the majority showing evidence of tabes dorsalis. The symptoms for the most part were gastric in type. Twenty-six cases have been classified as frank gastric crisis, on the basis of acute attacks, beginning and ending abruptly and characterized by pain or vomiting, or both; fourteen cases presented less typical gastro-intestinal symptoms, such as knife-like pains through the abdomen, or sporadic vomiting. In one case, intestinal spasm was apparently proved by operation. (Schlesinger [7] has reported colonic spasm demonstrated by the roentgen ray during an acute abdominal tabetic crisis.) Two cases in which the predominant symptoms were rectal have been included. Eight further cases with probable intra-abdominal pathologic conditions, in addition to neurosyphilis, are discussed.

In this group of fifty cases, twelve patients were operated on under mistaken diagnoses, eleven in other hospitals and one in the Massachusetts General Hospital; and one case diagnosed tabes by us later barely escaped operation for ulcer in another city. In one recognized tabetic patient, a duodenal ulcer was allowed to perforate before the surgeon would consent to operate. *A definite gastric pathologic condition was proved* by operation or indisputable roentgen-ray evidence in five cases; ulcer, in four; cancer in one (figures corresponding with those reported by Exner and Schwarzmann,[8] who at necropsy found peptic ulcer in five and gastric carcinoma in three of seventy-five tabetic patients), and decision as to presence or absence of ulcer was not made in three cases.

Two types of mistake in diagnosis are possible: Tabes may not be recognized and the symptoms attributed to an intra-abdominal pathologic condition:

CASE 1.—S. G., a man, aged 42, during six months had had several attacks of dull gnawing epigastric pain, lasting from six to eight days, without relation to food. He had been entirely well between attacks. The pupils reacted to light. The reflexes were normal. There was no history of syphilitic infection, and the blood Wassermann reaction was negative. Roentgen-ray findings were consistent with a pathologic condition of the gallbladder with possible adhesions about the appendix. The surgeon's preoperative note says, "Gallstones most likely; I do not feel sure that there is not ulcer of the duodenum." Operation disclosed no intra-abdominal pathologic condition except an appendix adherent at its base. A positive spinal fluid was later reported from another hospital. The history, typical neither of gallstones nor of ulcer, should have suggested the necessity of a lumbar puncture before operation.

Or tabes only may be recognized, and an accompanying ulcer disregarded:

CASE 2.—D. J. S., a man, aged 48, noticed one year before admittance that he staggered. For eight months he had had pain in the umbilical and epigastric regions, coming on from a few minutes to many hours after meals, and definitely relieved by food. Soda had not been taken. There was no history of jaundice. The pupils showed no reaction to light. The knee jerks were unequal. There was a positive Romberg's sign. The roentgen ray showed irregularity of the antrum and of the first portion of the duodenum, with several projections visible in the region of the duodenum. The blood Wassermann reaction was positive. The surgeon decided against operation on the basis of the positive Wassermann reaction, in spite of food relief and a roentgen-ray finding characteristic of ulcer.

Five months later the patient experienced sudden severe abdominal pain lasting forty-eight hours, and followed by the vomiting of a few spoonfuls of dark material. The knee jerks were now absent. There was definite tenderness and spasm of the upper abdomen. The preoperative diagnosis was duodenal ulcer with probable chronic perforation. An operation showed a minute perforation of the anterior wall of the duodenum, through which gas escaped. The duodenum had become adherent to the under wall of the liver. A roentgenogram three years later showed a well functioning stoma and persisting irregularity of the duodenum. Gastric symptoms were not at once relieved by gastro-enterostomy, but when last heard from four years after operation, the patient reported no further pain.

In the first group, the usual source of error is the unfamiliarity of the physician with the earliest symptoms and signs of tabes. In view of the fact that crisis may be the initial symptom of tabes, the history and examination are unquestionably of highest value in differentiating ulcer from tabes. The following points should be recognized:

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[*] From the Neurological and Medical departments of the Massachusetts General Hospital.

[*] Read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Charcot: Lectures on Diseases of the Nervous System, New Sydenham Society **90**: 29, 1881.

[2] Edsall, D. L.: Boston M. & S. J. **171**: 412, 1914.

[3] Nuzum, J. W.: Tabes Dorsalis, J. A. M. A. **66**: 482 (Feb. 12) 1916.

[4] Woltman, H. W.: Minnesota Med. J. **7**: 193 (March) 1924.

[5] Crohn, B. B.: Existence of Gastric Ulcer with Tabes Dorsalis, J. A. M. A. **77**: 2023 (Dec. 24) 1921.

[6] Full, and von Friedrich: München. med. Wchnschr. **69**: 1246 (Aug. 25) 1922.

[7] Schlesinger, E.: Berl. klin. Wchnschr. **4**: 878, 1918.

[8] Exner and Schwarzmann: Wien. klin. Wchnschr. 1912, No. 48.

1. As is well known, symptoms of ulcer of the duodenum occur usually in well marked cycles—a comparatively long period of discomfort followed by a shorter or a longer period of well being; tabetic symptoms, on the contrary, occur with pronounced irregularity. In the fifty cases studied, absolute irregularity is stressed in thirty-nine cases.

2. Food relief, relief from soda, and food-time relation, usually present in both gastric and duodenal ulcer, are typically rare in crisis. It must be recognized, however, that the pain of ulcer may be persistent and unrelieved by food or alkali. Such cases are usually of the penetrating type. We have seen one case with symptoms very suggestive of gallstones, which proved at operation to be a penetrating ulcer of the duodenum.

3. Vomiting is far more conspicuous in the tabetic patient than in the patient with ulcer, appearing with or without pain in forty of our series. In ulcer, vomiting is often obstructive and preceded by a history of discomfort or pain. In crisis it is frequently the initial symptom. Hematemesis occurred six times in our series, twice in cases with accompanying ulcer, and four times in cases without ulcer. It is well recognized that blood may appear in the vomitus of patients experiencing gastric crises. In these cases, however, the blood is usually small in amount and appears at the end of a long spell of vomiting, in contrast to ulcer, in which massive bleeding is sometimes the initial symptom, and hematemesis of moderate amounts not uncommon.

4. The pain of ulcer is usually epigastric, radiating, if at all, to the back; in our series of tabetic patients, pain (present thirty-seven times) was likewise epigastric in all cases. Radiation was specifically noted in fifteen cases only. In one case in which ulcer was present, and in four uncomplicated crises, the pain was referred to the back and shoulders; in the remaining ten cases (all crisis) the pain radiated laterally about the chest in seven instances, to the shoulders and chest in one case, to the shoulders and inguinal regions once, and across the abdomen once. In other words, radiation usually around the chest, i. e., atypical of ulcer, occurred in ten out of fourteen cases of pure crisis in which this symptom was noted. A case described by Crohn[5] presented this typical lateral radiation of pain. More careful observation of tabetic crisis may well disclose a higher percentage of lateral radiation.

5. A rather characteristic finding in tabetic patients subject to crisis is an area of hyperesthesia about the trunk, often most marked over the back in the middorsal region. Increased sensitiveness of the skin to cold is also found. Such hyperesthesia was noted in seven cases and could probably be demonstrated in a far larger proportion of cases if searched for.

6. It is our opinion that, with sufficient care, other concurrent symptoms of tabes may be discovered in most patients experiencing tabetic gastro-intestinal disturbances. Of our cases, twenty-eight of the fifty were found to present, along with or preceding the gastric disturbance, one or more other symptoms of tabes. (Lightning pains were noted twenty-one times; urinary symptoms, fifteen; cranial nerve palsies, ten; unsteadiness, ten; numbness of the legs and hands, seven; and sex disturbance, one.) Seven patients of this group had undergone needless operation. It is evident that in the presence of abdominal pain or vomiting, other symptoms of tabes are too often overlooked or disregarded.

7. Of the signs, the most constant neurologic abnormalities found were with reference to the pupils, which were regular, round and equal in only three instances out of the fifty. Irregularity and inequality were each noted twenty-four times; light reflex was described as absent in twenty-nine cases, sluggish in eighteen and normal in three. In contrast to this consistent abnormality in the pupils, the knee jerks were normal in fifteen of our series; the ankle jerks in nine. In the exclusion of tabes, therefore, four times as much reliance may be placed on normal pupils as on the presence of normal knee or ankle jerks.

8. The blood Wassermann reaction was positive in twenty-four cases and negative in sixteen. The spinal fluid (examined in forty-nine cases) showed abnormal findings in all but one case. The Wassermann reaction was positive forty-one times, negative eight. In six of the eight cases showing negative spinal fluid Wassermann reaction, the blood Wassermann was positive, and characteristic changes were noted in the pupils and reflexes. A completely normal spinal fluid (normal cell count, colloidal gold and protein content by quantitative estimation) is strong evidence against gastric crisis; only one case in this series presented a normal fluid.

9. Gastro-intestinal roentgen-ray examinations were carried out in twenty-four cases, in which abnormal findings were observed at some time in fifteen. Of these fifteen abnormal findings, five were correctly attributed to the presence of a gastric or duodenal pathologic condition. Ten represent abnormalities probably due to spasm. It is interesting to examine some of these roentgen-ray findings in detail. One report reads, "Sphincter irregular, a definite deformity of the duodenum." A later examination showed a normal duodenum. Another, "A constant defect in the pyloric end of the stomach, suggesting spasm but may be ulcer." This case showed a normal stomach and duodenum at operation. A third, "Duodenum flattened; the deformity could possibly be ulcer." A later roentgen-ray examination was negative. Again, "Duodenum poorly filled. A constant defect in outline present. Ulcer of the duodenum." An examination after atropin showed normal findings. In one case pyloric obstruction reported by roentgen ray led the surgeon to advise operation; a later roentgen-ray examination showed normal emptying time.

It is not in tabes only that roentgenograms suggestive of ulcer may give rise to false interpretation. Baetjer[9] says, "Sometimes marked hypertonicity may arise reflexly from gallbladder adhesions or a chronic appendix [he fails to specify tabes], and there may be with it a pseudospastic defect that simulates an ulcer." Anxiety, nausea or a cold barium meal may cause pylorospasm, with consequent incomplete filling of the duodenal cap. Abnormal roentgen-ray findings are, however, sufficiently frequent in neurosyphilis to justify extreme care in interpreting atypical findings. If a definite deformity, filling defect or niche cannot be demonstrated, examination should be repeated after thorough saturation with atropin, and a careful effort made to catch a completely filled duodenum. The surgeon contemplating operation for ulcer should feel no added diagnostic security from a roentgen-ray report merely "suggestive of ulcer." Eusterman[10] says, "One should not be too quick in accepting the roentgen-ray diagnosis of a lesion in association with tabes for, as Exner has pointed out, the vagus may undergo degenerative changes in this disease, which in turn may bring about spasm defects through faulty innervation." On the other hand, a definite diagnosis of ulcer is frequently possible by roentgen ray. This finding should be respected even though frank tabes coexist.

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[9] Baetjer, F. H., quoted by Tice, Frederick: Practice of Medicine, Hagerstown, Md., W. F. Prior Company, Inc. 7: 250, 1924.

10. Another method of differentiating symptoms due to neurosyphilis from those due to intra-abdominal pathologic conditions is the effect of antisyphilitic treatment. In certain of our cases the immediate reaction to intravenous arsenic was a flare-up of the lightning pains or gastric crisis. On the other hand, the subsequent response to a course of antisyphilitic treatment may be definitely favorable in effect on the gastro-intestinal disturbance of the neurosyphilitic patient, although we must admit that in some cases such treatment is entirely ineffective.

In differentiating crisis from possible gallbladder disease or appendicitis (next to ulcer the most frequent causes of error in diagnosis), emphasis must again be placed on the frequency with which the tabetic patient will present history or signs of neurosyphilis in addition to the outstanding abdominal condition; the position of pain; the atypical radiation, and the area of hyperesthesia often demonstrable in crisis. In a rather small proportion of cases, the spinal fluid alone makes differential diagnosis possible.

Concerning the mechanism of the gastro-intestinal symptoms occurring in tabetic patients, and the spasm seen by the roentgen ray, we have nothing new to offer. Whether the physiologic disturbance of the sympathetic nervous system is based on a pathologic condition of this system or is dependent on the recognized pathologic condition of the spinal cord and roots is not known.

CONCLUSIONS

Mistakes in diagnoses in this group of cases are still being made. These mistakes are not limited to the rural communities, but occur even in the large general hospital with its complete medical, surgical, neurologic and roentgen-ray equipment.

While the usual mistake is the unwarranted diagnosis of ulcer or gallstones in the tabetic patient, the error may be reversed, and a coexistent ulcer in a neurosyphilitic patient may be ignored and even allowed to perforate before diagnosis is made.

There are various degrees of gastro-intestinal disturbance caused by neurosyphilis, ranging from crisis, on the one hand (characterized by sudden onset of epigastric pain or vomiting, or both), to the least forms of gastric disturbance, on the other. These minor forms present occasional vomiting, pains occurring in any part of the abdomen, or attacks of epigastric discomfort merely, with or without gaseous eructations. Other forms of gastro-intestinal disturbance are constipation, diarrhea and rectal tenesmus. Such symptoms are too often treated by the physician without a suspicion that they may be due to neurosyphilis.

Though we recognize that crisis may be the first symptom, we believe crisis is rare without some accompanying signs or symptoms of tabes. Of these, abnormalities in the pupils are the most constant. We wish to emphasize that a negative blood Wassermann reaction is of no significance in eliminating the possibility of neurosyphilis, our findings in this regard being in agreement with those of Edsall.[2]

Irregularity of the pylorus or duodenum, demonstrated by roentgen-ray examination, is of rather common occurrence in neurosyphilis in the absence of gastric or duodenal pathologic conditions. Such irregularities, in order to constitute presumptive evidence of ulcer, must be confirmed after thorough atropin saturation.

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ABSTRACT OF DISCUSSION

Dr. Julius Grinker, Chicago: Dr. Nuzum's paper was based on the records of the Cook County Hospital, the surgical division. All the patients were operated on without a consultation with neurologists. Many of these patients were brought in at night as emergency cases, and surgeons went no farther in their inquiry than to follow their inclination to operate and ask for consent to operate. The state of affairs at present is quite different. When a patient is admitted in the daytime and is examined by the intern, this sort of mistake is very infrequent. Surgeons hesitate to make their own diagnosis, but they refer cases to the neurologist more often than formerly. But in spite of it, many mistakes are made by surgeons because of their neglect to take reflexes and to examine neurologically. I think the excellent paper to which we listened would do much good if it were read before a meeting of surgeons, who are in great need of such good advice, as it contains. I agree with the author that the roentgenographic findings do not offer criteria for operations in the majority of cases. They are often misleading. I saw patients who were turned over to surgeons for operation after a glance at a roentgenogram. I argued against operation and perhaps saved their lives. The author has emphasized these mistakes sufficiently for us not to fall into similar traps. There is another reason why the tabetic patient occasionally falls into the hands of the surgeon, which needs emphasis. Especially in patients suffering from gastric crises are we apt to find the presence of knee jerks, also in tabetic patients suffering from perforating ulcer. What is more natural than for the physician to exclude tabes as a possibility and to rush the patient to the surgeon? And the general practitioner relies too much on a positive Wassermann reaction in the diagnosis of tabes, and consequently he excludes that disease when the test is negative, and then the surgeon is appealed to, who is mostly ready to respond. (Applause.)

Dr. James B. Ayer, Boston: In reply to Dr. Grinker, it might have been better to read this paper before some other section. There is, however, one point that can well be emphasized, even before neurologists. I refer not to pupillary and reflex changes, but to roentgen-ray findings in this group of cases. I think it is fair to say that we had ourselves to educate the roentgenologist in his interpretation in the first years of our work in this subject. In the earlier cases, his report would read, "Characteristic of gastric ulcer." We have changed this so that now it reads "Findings compatible with gastric ulcer." In that the roentgen-ray findings are of great importance in the differential diagnosis of gastro-intestinal disturbance, and in that very little mention has been made of the roentgen-ray findings in other papers on gastric crises, I believe that the paper is worth publication for this fact alone. One more point might be made: Our report shows a distinct lessening in frequency of gastric operations in tabetic patients. I am not saying this because we have apparently done well, but because it represents what has been going on in the community. In our series are patients who have been operated on before coming to us. Unquestionably, the same occurred in the series of Nuzum, Crohn and others, so that the statistics on the number of operations in neurosyphilis of this type form a good index of the neurologic diagnostic ability of the community at large. While we must admit that the subject under consideration is not a new one, it must be admitted that, until mistaken operations are reduced to zero, the subject is to be an ever present one.

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[10] Eusterman, G. B., in discussion on Crohn, B. B.: The Existence of Gastric Ulcer with Tabes Dorsalis, J. A. M. A. 77: 2029 (Dec. 24) 1921.

THE CONTROL OF FOODS EATEN RAW *

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Primitive man had only to reach out to Nature for his supply of life-sustaining foods. These he ate raw or only partly prepared, and, thus nourished, he was able to face the rough forces of the elements. There was little danger of his food supply becoming infected, for the simple reason that it passed through no other hands than his own. There was but little barter or exchange of food supplies at that period.

This state of individual economy was changed with changing conditions. As century followed century, in the swift and confusing turmoil of what is today termed "progress," man's dependence on his fellow creatures increased, and in like measure his food became subjected to handling by many hands before it finally reached his stomach. Only a few decades ago, man was still in a condition of semi-independence; he could go into his own or his neighbor's barnyard, orchard or vegetable garden and obtain his own foodstuffs, kill his own animals and milk his own cows. But with the advance of civilization, the eating of raw foods became confined principally to a few staple articles, such as milk, ice-cream, certain of the sea foods (such as oysters), vegetables, fruits and beverages. Those articles which are consumed in a raw state are so eaten largely because their flavor is injured by cooking, and, in some instances, in order to preserve their vitamin content.

Modern economic conditions make it necessary that foods, from the time they leave their source, through the processes of preparing, packing, shipping, unloading, wholesaling, retailing, sampling, displaying and, finally, delivery to the consumer, be handled by many hands. This naturally increases and multiplies the possibilities of contamination.

MILK

In 1907, Rosenau[1] tabulated 317 outbreaks of typhoid fever, fifty-one of diphtheria and 125 of scarlet fever transmitted by infected raw milk. Since that date much attention has been given to safeguarding the milk supply, especially the supply of the larger municipalities in the Northern states. As a result, milk-borne epidemics have been less frequent than before that time.

In Chicago there has been no case of typhoid fever, diphtheria, scarlet fever or other infectious disease traced to the milk supply since 1916, when universal pasteurization was put into effect.

In reviewing the experience of safeguarding the milk supply during this period, there are a few features that are worthy of mention.

First of all, the control of pasteurization is accomplished by a twofold check; namely, the bacterial examination of the raw and pasteurized product, and, secondly, the requirement that all pasteurizing machines be equipped with automatic temperature recording devices, the records of which are submitted to the department of health every week.

In addition to control of pasteurization, it is essential that strict attention be paid to the manner in which the milk is handled, with a view to preventing contamination subsequent to pasteurization. In this connection, it is important that all utensils, including the bottles in which the milk is placed, should be thoroughly sterilized and that the product should be protected against contamination in handling.

The principal source of such contamination is the hand bottling a[illegible] which is frequently practiced in the [illegible] As the workers carrying on these processes are not examined and may be typhoid carriers, the department of health of Chicago has entirely prohib[illegible] and believes that in this way the [illegible] contamination has been minimized.

The danger of subsequent contamination is especially great in restaurants in which milk is handled in the usual manner. The dipping of the milk is not only a source of bacterial infection but also results in a very unequal distribution of the butter fat in the product as delivered to the consumer.

Prior to Nov. 15, 1923, 33⅓ per cent. of the samples of milk and cream taken from restaurants were found below grade in butter fat, and the bacterial content of the milk served was found to be much higher than that of the bottled milk as delivered to the homes.

To remedy this condition, an order was made effective, March 15, 1924, requiring all milk served in restaurants to be bottled or to be dispensed from approved urns, insuring the proper refrigeration, protection and mixing of the milk dispensed. As a result of this requirement, the "below-grade-in-butter-fat" samples collected from restaurants have fallen to approximately 3 per cent., and the bacterial counts have improved.

CREAM

The control of the pasteurization of the cream supply of a large city is much more difficult than that of the milk supply, because cream is derived from more numerous sources, which, in many instances, are at great distances from the city.

Another reason for the difficulty experienced in keeping the bacterial content of pasteurized cream within safe standards is the fluctuation in the demand for this product. Milk dealers report that the end of each week brings an extraordinary demand for cream for domestic consumption, and that variations in the weather cause another great fluctuation in the demand, due to variation in the consumption of ice-cream during hot and cold periods. There results, therefore, a tendency, made necessary by the market conditions, to store the cream until it is needed.

It is apparently for this reason that the dealers in cream have been slow to comply with the requirement of the Chicago ordinance which stipulates that cream be dated, showing the day on which it was pasteurized. It is interesting to note that a review of the regulations as to the dating of cream in a number of the principal cities shows that in only a few of them is it required that the date of pasteurization be given on the caps and labels of cream containers.

As a result of the foregoing conditions, it is quite universally found that the bacterial content of cream is much higher than that of milk, and that colon bacilli are often found in 0.001 or 0.01 c.c. portions. The latter finding calls attention to the potential dangers that would arise in case such aged cream was primarily infected with typhoid bacilli or other infective organisms. In order to obviate this danger, notice has recently been given in Chicago that the dating require-

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Rosenau: Bull. 56, Hyg. Lab., U. S. P. H. S.

ment of the ordinance will be strictly enforced. As a result of such requirement, it appears that much of the cream will be pasteurized in the city, and arrangements have been made whereby cream pasteurized by the "flash" process in the country or otherwise partially heated may be received in the city and given a final, more nearly perfect pasteurization under the direct supervision of the department of health.

CERTIFIED MILK

Certified milk is prepared with a view to making it safe for consumption in the raw state.

The conditions under which it is produced, under the supervision of the Medical Milk Commission of the local medical society, are well known and need not be gone into at this time. There are certain problems, however, that must be solved in connection with the safeguarding of this product. The outbreak of streptococcus sore throat reported by C.-E. A. Winslow in Boston, transmitted by certified milk, has called attention to the matter.

In an analysis of seventy-one samples of certified milk derived from nine farms producing certified milk for the Chicago market, streptococci of the beta type, which were virulent to mice, were found in 5.6 per cent. of the samples. During April, 1925, this type of organism was found in the samples of three of the farms supplying the city. The physician for the milk commission reported that a careful examination had been made of all the workers and no streptococcus infection had been discovered. It was therefore thought desirable to examine the milk of the individual cows. The result of this analysis was as shown in the accompanying table.

Summary of Results Obtained from Tests of Milk from Cows on A, B, C and D Farms

	Number	Per Cent.
Cows tested	606	...
Cows showing beta type	37	8.5
Cows showing alpha type	185	30.5

It will be noted that 222, or 39 per cent., of the 606 cows tested showed streptococci of the alpha and beta types, thirty-seven, or 8.5 per cent., being of the beta type. The organisms of this type isolated from four of these cows killed two mice within forty-eight hours. It was reported that the veterinary examination of all the cows subjected to these individual tests were negative, including the four in which the virulent organisms were obtained.

The question of the infectiveness of milk containing streptococci has not been definitely determined. On the advice of the bacteriologists of the consulting staff of the Chicago Health Department, the following method of procedure has been adopted for the safeguarding of the milk containing streptococci:

> Hemolytic organisms found in certified milk should be regarded as of no significance unless conforming to the following characteristics:
>
> They should be streptococci of proper morphology, giving colonies of the beta type on blood agar.
>
> Production of hemolysin should be sufficient to produce full hemolysis of rabbit's blood corpuscles within two hours.
>
> They should kill both of two mice injected, acutely within forty-eight hours, and should be recovered from the animals and identified.
>
> Samples containing organisms conforming to these tests may be regarded as under suspicion, but these data are merely suggestive and not proof that the organism is dangerous to human beings. Any action which may be taken must necessarily be determined by practical circumstances. If, however, an absolute safeguard against the possibility of septic sore throat outbreaks is desired, pasteurization or a shut-off of the supply until subsequent samples prove negative is the only reliable procedure.

ICE-CREAM

Ice-cream, when properly prepared and safeguarded against infection, is a wholesome dairy product, and should be in the same category as milk, cream, butter and cheese as a daily article of diet. It is, however, a well known fact that the bacterial content of some of the ice-cream sold is so high that sanitarians and dietitians have refrained from recommending this product freely as a food. A close study of the industry shows that much improvement has been brought about in recent years in the sanitation of plants and in the sterilization of utensils and machinery, but that not enough attention has been given to the various ingredients entering into the ice-cream mixture. The cream used is often an old product which has been rejected by milk dealers supplying the domestic trade. During prolonged hot spells the cream is derived from more distant sources where dairy inspection is not rigidly enforced, and where it is difficult to control pasteurization.

The other ingredients entering into the mixture, such as the condensed milk, milk powder, gelatin, fresh fruits and even the flavors, may contain excessive numbers of bacteria, and even colon bacilli.

In order properly to safeguard the ice-cream supply it has been found necessary to require that the completed mixture should be properly pasteurized before freezing. This, of course, entails a repasteurization of some of the cream used. Here, again, it is permitted that this cream may be treated by "flash" pasteurization process in the country, simply for the purpose of increasing its keeping qualities in transit, and then be more properly pasteurized as a part of the general mixture.

It is also found that somewhat higher temperatures can be applied to the pasteurization of the product used for the manufacture of ice-cream than of milk to be used for domestic purposes, because it is not necessary in the case of ice-cream to preserve the cream line. Thus, with pasteurization of the final mixture at a temperature, say, of 150 F. for thirty minutes, a product should be obtained with a low bacterial content, and entirely free from infective organisms, provided proper precautions are taken to protect the finished product against subsequent contamination. To this end, steps should be taken to see that the product is handled in the plants by machine as far as practical, that such machinery and all containers are perfectly sterilized, and that wherever it is necessary to handle the products by human hands, the workers be examined to see that they are free from typhoid bacilli or other infective organisms.

OYSTERS AND OTHER BIVALVES

Recent experience has again shown the danger inherent in oysters and other sea food when eaten raw.

A comprehensive report on the typhoid epidemic last winter in New York, Chicago and Washington, made by Lumsden, Haseltine, Leake and Veldee,[2] and a report on the Chicago outbreak[3] covered the most recent experiences with outbreaks of typhoid fever traced to oysters consumed in the raw state. Since the report of the outbreak at Wesleyan University by Conn,[4] there have been fifteen records in the literature of other typhoid outbreaks traced directly to infected oysters. In view of this situation, it is imperative that steps be taken to safeguard this article of food.

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[2] Lumsden, Haseltine, Leake and Veldee: A Typhoid Fever Epidemic Caused by Oyster-Borne Infection (1924-1925), Pub. Health Rep., Supplement 50.

I concur in the conclusions arrived at by a recent conference called by the Surgeon General of the United States Public Health Service in Washington, Feb. 19, 1925. Until these recommendations are put into effect, local, state and municipal health officers will be compelled to exercise such control over the oysters sold in their respective jurisdictions as will insure a safe supply. This can best be done by requiring all shippers of oysters to secure a permit before being allowed to sell their product, and to get reports from the local and state officials at the place of production, showing that inspections have been made at the place where the oysters are grown, shucked or otherwise prepared.

The danger of contamination of the oysters during the handling should also receive attention. This occurs especially in the packing and shucking establishments, and is shown by the difference in colon content between the fresh and the prepared product. Shucked oysters often show a score of a thousand and more, while the shell oysters usually score less than a hundred. The danger from typhoid carriers in these establishments has to be met. If the matter of inspection and control of the growing, packing and distribution of oysters is not assumed by the federal authorities in cooperation with the states in which these oysters are produced, then it will be necessary for the local health officers in places where they are distributed to exercise a stricter control, and to this end it is hoped that some process may be worked out whereby both the shell and the shucked stock may be purified by some means, such as washing or chlorination. Such purification might, to a large extent, supersede the inspection and control that the local authorities would otherwise be compelled to exercise over the growing and handling of oysters at the place of their production.

FRUITS AND VEGETABLES

Theoretically, fruits and vegetables may transmit typhoid fever and other infections, but practically it is very difficult to trace cases of disease to this source. The reason is that ordinarily contamination of fruits and vegetables occurs during handling. Only a few specimens become infected, and on account of the nature of these fruits and vegetables the infection does not multiply to any great extent. It is for this reason that cases of infectious disease developing are usually isolated, and from a practical standpoint are hard to connect with the source of infection. Another reason for the difficulty in tracing infection in fruits and vegetables is the promiscuous distribution of these products, as a result of which it can rarely be shown that one individual has received his supply for any length of time from any particular source.

In the recent outbreak of typhoid in Chicago, which was ultimately traced to oyster infection, special effort was made to determine the sources of certain vegetables, such as celery, lettuce and watercress, served in hotels and restaurants, where it appeared that the majority of the patients had contracted their infection. When the tracing of these commodities to their ultimate source was attempted, it was found that the ramifications were such that it was practically impossible to state definitely from what source the patients had derived the fruits and vegetables eaten during the probable infection period. The only thing which could be proved definitely was that there was no common source of supply for these foods in the series of cases investigated.

The investigation also disclosed that watercress should be given more attention as a source of typhoid infection than it is ordinarily given by health departments. This vegetable is grown in swampy places in which the water is apt to be contaminated with sewage matter.

Bacteriologic examination of fruits and vegetables has not proved of any value. In the majority of instances *B. coli* is found, but it is impossible to determine whether this is of human origin or derived from the soil, where it is found in large numbers. In certain shipments of lettuce recently examined by the Chicago Department of Health, it was found that the high colon count was due to contaminated ice used in the packing of this commodity.

On account of the location of the infective organisms on the surface of these vegetables, it has been found that a careful and thorough washing, especially in hot water, if practicable, is very effective in removing the superficial contamination. Attention to this matter is therefore recommended as the best safeguard against infection by fruits and vegetables.

CARBONATED BEVERAGES

The method of insuring the safety of carbonated beverages is comparatively simple, provided a pure water supply is available for their manufacture. The purity of the product made originally from a safe water supply can be maintained, if proper attention is given to sanitation of the plant and machinery, and the utensils and containers are properly cleaned and sterilized before they are filled.

Experience has shown that an alkali soak consisting of a 4 per cent. solution of sodium hydroxid, maintained at a temperature of not less than 130 F. for a period of not less than five minutes, is very effective in cleansing and sterilizing beverage bottles. After such sterilization, they should be thoroughly rinsed in pure water and filled.

It has been shown that the carbonic acid gas is a deterrent of bacterial growth, and it is possible that the saccharin which is frequently used as a substitute for sugar may also inhibit the multiplication of bacteria.

Beverages when thus prepared should have a bacterial content not much above that of the water from which they are derived.

RAW MEAT AND SAUSAGE

The parasites that make raw meat dangerous to health are *Taenia solium*, *Taenia mediocanellata*, *Taenia ecchinococcus*, *Bothriocephalus latus* and *Trichina spiralis*.

The public is not generally aware of the fact that there is no systematic microscopic inspection of meats in slaughter houses. The examination for parasites is apparently not made because it is assumed that meat food products are not ordinarily eaten raw in this country. There are, however, some nationalities and immigrants who persist in the habits learned in their native lands, such as the eating of raw ham and sausages, and, in some instances, even the eating of raw beef. It is among this class that the cases of trichinosis and tapeworm observed in this country occur.

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[3] Bundesen, H. N.: Typhoid Fever Epidemic in Chicago Apparently Due to Oysters, J. A. M. A. 84: 641-650 (Feb. 28) 1925.

[4] Conn: Report of the State Board of Health of Connecticut, 1894, pp. 239-264.

Trichinosis is probably more common than appears in the records of reported cases of this disease. During the last three years, twenty-seven cases of the disease were reported to the Chicago Department of Health.

Although pickling and boiling are recognized means of rendering meat parasites innocuous, it is evident that these means cannot be relied on to be used in the home to safeguard the public against meat parasite infection.

The Bureau of Animal Industry of the U. S. Department of Agriculture has issued regulations in regard to the manufacture of sausage commonly eaten without cooking, requiring pork entering into their composition, if not prepared in accordance with certain smoking and curing methods which it has outlined, to be subjected to refrigeration for not less than twenty days at a temperature not higher than 5 F.

ABSTRACT OF DISCUSSION

Dr. Oscar Dowling, Shreveport, La.: While the milk of Louisiana is not what it ought to be, no milk can be sold until the cow is tuberculin tested.

Dr. J. W. VanDerslice, Oak Park, Ill.: *Streptococcus hemolyticus* is found constantly in raw milk. From 10 to 30 per cent. of cows in all herds will at times show *Streptococcus hemolyticus* of the beta type. These organisms may kill mice, but this is not evidence of their pathogenicity to man. There is no easy way by which the bovine type can be distinguished from the human type. The Chicago Medical Society Milk Commission is now making an exhaustive research on the problem, and any material of value will be given to the American Association of Medical Milk Commissions for publicity.

Dr. A. S. Hershfield, Chicago: Dr. Bundesen, commissioner of health of Chicago, has aroused the interest of the people of Chicago in public health. He keeps that interest alive in milk, food, water and other necessities by teaching positive health through *"Chicago's Health,"* a bulletin issued every week by the department of health. The campaign for safe milk that he inaugurated a year and a half ago was done with considerable trepidation, not knowing how the public would take it. But it was taken in the spirit it was meant, to the general advantage of the people. Again, in the case of medical examination of food handlers, a great deal of publicity was given to this health measure, and restaurant owners said they would cooperate with the health commission to protect the consumer. In other words, a sane, intelligent attitude toward public health and feeding it properly to the public is bound to bring the backing of the community; and also brings the realization that standing behind positive health measures is a guarantee of health safety.

Dr. William J. Hickson, Chicago: In regard to the personnel of many restaurants: We examine in the psychopathic laboratory in Chicago cases mentally, emotionally and physically, the flotsam and jetsam of a large city. Our reports will be published in the forthcoming annual report of the Chicago municipal court. We found the personnel of many restaurant workers in Chicago to be very low not only on the intelligence but also on the emotional side; therefore I think it very important that these measures of hygiene be strictly carried out because such personnel is too utterly irresponsible personally as well as to others about hygiene or damage they can do and I think the regulations in this direction cannot be too strict.

Dr. Louis I. Harris, New York: Dr. Bundesen touched on so many topics that he probably had to omit mention of many important items. I would emphasize the importance of pasteurizing butter. It enters so largely into the diet of children that it deserves especial comment. It should be legally required exactly as is the pasteurization of milk. I think the time will come when the sale of loose or dipped milk will be regarded as a disgrace for any community to permit it. The dispensing of any drink so that it slops over the hands of the person serving it should be prohibited. I recognize that the solution of the question involves many practical difficulties. The question of streptococcus standards interests us immensely. We should not be dogmatic and urge on small communities things that cannot be carried out because of the lack of adequate machinery. We must first be quite sure that we have worked out standards and methods of differentiating the type of streptococcus that is harmful from that which is not harmful before we give any kind of sanction, implied or direct, to milk containing streptococci, or urge the adoption of methods that cannot be carried over into small communities. Anatole France, traveling through Italy, was amused by a watermelon vender who cried, "Buy my melons; for three cents, eat, drink and wash your face." Dr. Bundesen in his campaigns quite properly gives force to his counsels by stressing the many advantages that will follow from heeding his advice. It is effective public health education. We must bear in mind that there is a great consumption of raw and uncooked foods. Exposure to dust should be prevented. The examination of food handlers, which, on the whole, is primitive in its present development, represents an effort in the right direction. Possibly, in the not distant future, such examinations will be conducted everywhere as efficiently as their importance merits. Food inspection may be ever so excellent, and yet be nullified by sanitary methods of distribution and service.

Prof. I. V. Hiscock, New Haven, Conn.: Many important problems are involved in the sanitary control of food supplies, as emphasized in Dr. Bundesen's paper. It is gratifying to note, however, in considering our most essential food, that milk supplies throughout the country have generally shown striking improvement in recent years. This has come about through the efforts of health officials, coupled with the cooperation of persons connected with the dairy industry. Today, in most of our large cities at least, all the milk is either pasteurized or comes from tuberculin-tested herds; and in many cases from 90 to 98 per cent. of the supply is pasteurized by the holding process. It is true that pasteurization was never intended to cover up the trail of dirty milk. As has been well pointed out, milk production must be supervised all the way from the source to the point of delivery. While I also believe that we need a certain amount of milk of certified grade, it seems to me we should not forget that certification does not necessarily guarantee safety. This fact has recently been ably demonstrateed by Dr. Huntington Williams, who has traced a paratyphoid epidemic in New York State to milk produced on a certified farm. During the last few months I have had the pleasure of visiting two splendid dairy farms, one in Michigan and one in Connecticut, where the milk of certified grade was pasteurized before being fed to calves.

Dr. F. C. Johnson, New Brunswick, N. J.: I wish to speak of an interesting case under the class of foods that Dr. Bundesen passed over quickly. Coming from California there are reports of an unusual specific infection of the gastro-intestinal tract which has been communicated by raw lettuce. We had a little boy in New Brunswick who was especially fond of raw lettuce. He developed colitis with diarrhea, and our technician, who had worked in California, recognized at once the eggs of the parasite and there is no reason to doubt that it was transferred to New Brunswick from California in raw lettuce. It was interesting to me from an agricultural standpoint, having been an agriculturist; and, being a pediatrician, I have advised not to feed lettuce or celery to children as the possibility of infections being carried by these raw vegetables is really great, in view of the large amounts of excreta of farm animals and sometimes of human beings that are used in fertilizing the crops of lettuce and celery.

Dr. Ferguson, Chicago: During the last six or seven months there seems to have been a rather severe attack on the certified milk industry by the health officers throughout the country. We are at a loss at the present time to know just why this has occurred, and I was very glad to hear Dr. Bundesen state that he favors certified milk, provided it is properly protected. I believe all medical milk commissions are striving to do this and that they are all alert to all dangers to the product, especially the finding of *Streptococcus hemolyticus* of the bovine type in the milk. In going over this situation with a number of health officers, we find that certified milk is not the only food product going into communities which has this streptococcus in it. We find it in pasteurized milk and butter and cheese. We believe certified milk is the ideal that we should continue to safeguard in order that we may have this ideal for other dairy products to live up to. In order to do that, we recognize that certified milk must be properly safeguarded by the Medical Milk Commission. In a very important conference which we had at Princeton, a few nights ago, there were some important points brought up which we hope to have brought out in book form, and which will help in distinguishing between bovine and human streptococci. Dr. Jones, who is Dr. Smith's co-worker at the Rockefeller Foundation, stated definitely that the bovine type is harmless to human beings and is found in butter and pasteurized milk and other dairy products. My plea therefore is for you not to make an attack on the highest product in the dairy industry, but help the medical milk commission keep that ideal in order that we may have something to aim at. Certified milk has held its place for thirty years and has brought the dairy industry up to where it now is.

DR. P. H. HOURIGAN, Buffalo: I was interested in the matter of food handlers and we are interested in handling food. We find benefit from the health department. Last year we took up the matter of milk and required food handlers to be examined. We required cultures from the nose and throat, a Widal test, smears from the vagina and urethra, and then a Wassermann test. That ordinance went into effect, January 1. Of about 100 Wassermann tests we found about 8 per cent. positive. I want just to bring up that matter to the doctor and ask what he thinks of that examination of the food handlers.

DR. W. H. SEEMANN, New Orleans: Three or four years ago, when a conference of health officers was held in Jackson, Miss., we were endeavoring in our small town way to improve the milk supply and have the tuberculin testing of cattle generally accepted. One of the most brilliant writers and one of the most persistent speakers and vitriolic impressionists I have ever listened to was there and, being a man of national, as well as international fame, he thoroughly convinced himself he was right, and insisted that it was puerile to talk of anything but pasteurization. When I got up the bills we demanded at the beginning that we should have tuberculin tested cattle, dairy utensils 100 per cent. in equipment, personnel to acquire cleanly habits, and then, if we wished, to pasteurize. I am heartily in favor of pasteurization, but I am glad to see we are getting at the source.

Influenza.—Epidemic influenza, so far as can be recognized by the meager historical descriptions, occurred at least as early as the fourteenth century. Since the beginning of the sixteenth century epidemic waves of this disease have swept over the world at more or less frequent intervals, the latest being the great pandemic of 1918-1919. The loss of life in the recent outbreak was enormous, amounting to over 450,000 deaths in the United States and to over 6,000,000 in India. . . . In the years between pandemics, for example, between 1890 and 1918, many deaths have been attributed to "influenza," but since recognition of true influenza in nonepidemic periods is hardly possible by either clinical or bacterial methods, the identity of the "influenza" of 1917 with the epidemic influenza of 1918 is uncertain. It is perhaps significant that the age-grouping of the "influenza" deaths in nonepidemic periods is very different from that in pandemics.—Jordan, E. O.: General Bacteriology, Ed. 8, Philadelphia, W. B. Saunders Company, 1925.

END-RESULTS IN TREATMENT OF KNEE JOINT TUBERCULOSIS.*

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AND
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In July, 1904, the Country Branch of the New York Orthopaedic Dispensary and Hospital was opened with a capacity of fifty beds for the treatment of joint tuberculosis in children. In 1908, it was enlarged to a capacity of 130 beds. In September, 1924, thirty more beds were added for adults, making the total capacity 165 beds.

The hospital is situated in the rolling country of Westchester County, 22 miles from New York, near White Plains, at an elevation of 400 feet above sea level. It was built for the definite purpose of furnishing a place in healthful surroundings where children with joint tuberculosis could remain for long periods under the continuous observation of the same surgical staff. The object was that more accurate knowledge might thus be obtained of the course of the disease as it affected the individual joint, its influence on the development of children, and the end-result obtained by treatment.

The organization was planned so that the full benefit might be secured for the individual case: life in the country, good air, sunshine, good food and good surgical care.

Only children were admitted in the earlier years of the hospital's activities, and the cases were those of tuberculosis of almost all the joints. Among them were seventy-seven children with knee joint tuberculosis who remained long enough under observation to make their study of value. There were other cases involving the knee that were not seen long enough to afford any information of value and they are not included in this study.

These patients were those admitted during the period from July, 1904, to July, 1921. The average duration of disease before the patients were admitted to the hospital was something over three years. In many instances the diagnosis had not been made, or had been inaccurate and none of the children had had any adequate treatment in the dispensaries in the city. Some of them had worn plaster, and had had massage, and various measures of this kind. The general condition of these patients was not conspicuously bad and seems to have had no particular bearing on their progress.

In estimating the end-result, joint tuberculosis was considered quiescent or clinically cured only when all muscle spasm or any other symptoms suggesting active disease had disappeared. Indeed, in most instances the patients were kept in the hospital for a year after all treatment had been discontinued, living perfectly free, active lives. They were then discharged to their homes and followed up through the outpatient department of the city dispensary.

Of the seventy-seven cases, fifty were discharged as quiescent; two patients died subsequently, and three other cases became quiescent soon after discharge. While as much information as is possible will be given of the remaining nineteen cases, it is chiefly with the fifty-one that we are concerned.

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* From the Country Branch of the New York Orthopaedic Dispensary and Hospital.

* Read before the Section on Orthopedic Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

The ages of the patients varied from 9 months to 14 years, and the average age of onset of the disease was 4 years. The youngest patient was also syphilitic, and since the local condition had progressed in spite of treatment for syphilis it was thought justifiable to continue the diagnosis of tuberculosis as well. The knee is still very active although the patient's general condition is much improved. There were two other very young patients, the onset being at about 1 year of age. One of these cases is still active after five years, and the other became quiescent in seven years and has been quiescent for four years. Four patients had the onset at 1½ years of age; one case became quiescent after a duration of thirteen years, recurring in seven years, and is still active, ten years later. Another was treated at the country branch nine years, was discharged active, and is still active after eleven years. These two patients refuse to be operated on, although in neither case is there the slightest possibility of ever securing any function in the joint. One of the others became perfectly well in a year and has remained so; this certainly was not tuberculosis. The fourth failed to become quiescent in eight years of treatment and was fused by operative measures. The patient is now well. In one case the disease began at the age of 14. After five years of treatment by immobilization, the knee became naturally fused and has been well for thirteen years.

In considering the very young patients, it seems that they are much slower to respond to treatment and that the condition is more likely to recur early than in those patients who have sufficient resistance to reach an older period before the disease begins.

In reviewing the entire seventy-seven cases, it is striking to observe how few of them were normal persons, and the youngest patients, with one exception, showed definite evidence of enfeebled growth.

As to the question of the influence of trauma as a causative factor, it would appear from this study that there is no definite evidence that trauma other than that of normal activity has any relationship to the cause of the disease or its severity.

Cutaneous tuberculin tests were not carried out in many of the earlier cases, but when done were positive in all but two cases. The two children who did not react were definitely tuberculous, and their failure to react is believed to be due to the fact that mixed tuberculin was not used. Recent work has shown that the reactions vary with the bovine and human types, and on occasion reactions were given with only one kind.

The Wassermann test was used in about one half of the cases, and enough positive reactions were gained to indicate its need as a routine measure, proving as it does sometimes that the two diseases may exist in the same person. When the joint is tuberculous and syphilitic, antisyphilitic treatment is helpful only to the extent that it affects the general condition. There were only five cases that showed positive evidence of syphilis, so that there was no reason for believing that the majority of the cases had a syphilitic focus as a primary source.

Seven children are dead. Three died of the tuberculous lesions, three of pneumonia, and one following a laparotomy. Two of these had had quiescent joints for four and five years, respectively, at the time of death. In the first case, death was due to a tuberculous kidney and in the second to pulmonary tuberculosis.

Of the sixteen children who, for various reasons, were discharged from the country branch while the disease was active, the condition became subsequently quiescent in three, as noted above; four cases that remained active have been fused by operation, and nine are still active, from four to eleven years after discharge.

The history of these patients suggests that they are much better after undergoing treatment in institutions in the country than in city hospitals and dispensaries, and it further suggests that operative treatment is conservative rather than radical, especially in those patients who cannot be controlled.

In the fifty-one cases that were regarded as clinically cured, it required an average of six and one-half years to accomplish that result; the longest period in any single case was thirteen and one-half years, and the shortest was two years and eight months. The former recurred eight years later, and the latter is still quiescent, six years later. Sixteen of the fifty-one cases recurred after periods varying from nine months to ten years. Lowered resistance, for one reason or another, rather than gross trauma, appeared to be the cause of these recurrences. In making this statement, the constant slight traumatism caused by movement is not considered, although its removal is an essential part of the treatment. Four of them were fused immediately and six subsequently, and the patients are now well. Two of the cases became again quiescent after a period of immobilization, and the four others are still active, undergoing some sort of treatment, but operation still being refused. Adding to these the cases that remain from among those discharged as active, there are of the seventy patients still living thirteen with active knee joint tuberculosis at the present time. There are thirty-five cases, therefore, of the fifty-one that have remained inactive. Of this number there are ten children who, obviously, never had tuberculosis. Seven of them have perfectly free knees, and after an average of four years show no evidence of ever having had any knee disability. It took an average of three years to accomplish this result. One case is that of villous arthritis, and the other two are probably syphilitic. Of the twenty-five cases remaining, only five of them have ankylosed, three by bony ankylosis and two by fibrous tissue. There remain, then, twenty cases with motion which varies from 10 to 100 degrees, nine of these cases having less than 45 degrees. Four children have severe knock-knee deformity; two have severe subluxation, and nine have more or less flexion deformity.

In the entire series, sixteen were fused by operative means, and none of them have shown the slightest evidence of disease since that time. An average of seven months was consumed in gaining bony fusion, the time depending on the extent of the bone involvement, the bone-growing capacity of the patient, and the excellence of the operative technic. All were unmistakably tuberculous. Four were reported by the pathologist as chronic arthritis, illustrating the necessity of being very careful in selecting the tissue for examination, and the possibility of making mistakes in joints that are explored for the purpose of diagnosis. Of these sixteen cases, four are among those who never became quiescent. The total duration of the disease in these four averaged eight and one-half years, the longest being seventeen years and the shortest three and one-half. The other twelve were among those which became quiescent but relapsed. The average duration of disease in these was nine years, the longest eighteen and the shortest four years.

The influence of the disease on growth is shown in the fact that about one half of the cases show lengthening, and the patella is almost invariably enlarged on the diseased side. Growth of the femur is most easily stimulated. Some of the extremities were shorter and some longer. Although for a period of time there is stimulation of growth, more frequently of the femur as noted above, but sometimes of the tibia as well, in the end, the extremities tend to become of equal length. The average shortening of those that were short was about three-fourths inch, the femur being the bone most seriously retarded.

SUMMARY

Of the seventy-seven patients, seven are dead. Of the seventy remaining cases, sixteen have been operatively fused, of which twelve are cases that relapsed and four are cases that did not become quiescent. Fifty-three cases, including two in which the patients died, became quiescent. Fifty-one remain, in ten of which there never was tuberculosis, leaving forty-one. Of these, sixteen have already relapsed, twelve are fused, two are again quiescent, and four remain active. Add to these the nine that never became inactive, and there are now thirteen active cases in the whole series. Twenty-seven cases are inactive, three with bony ankylosis and therefore safe, two with fibrous ankylosis and unsafe, and twenty-two with varying degrees of motion and deformity, all of which are certainly unsafe.

The average age of onset was 4 years. The duration of time before the quiescent period was reached was, on an average, six and one-half years. The average age at which relapse has occurred in quiescent cases was 17 years, seven years after discharge. The relapses to date among the cases that became quiescent are well over one third of the series. The average period during which these patients have been observed is something over fifteen years, the longest twenty-four and the shortest six years.

CONCLUSIONS

This study gives convincing evidence that the methods of diagnosis used in these cases, although they were those practiced universally at the time, are wholly untrustworthy.

We know of no method of making a diagnosis in knee joint tuberculosis except by aspiration, with guinea-pig inoculation, or by exploratory operation with tissue examination and guinea-pig inoculation.

Without a positive means of diagnosis, we are subjecting patients who do not have the disease to long periods of treatment, having our suspicions confirmed by the bone and muscle atrophy that appears as a result of the treatment. Subjecting the joints, especially of growing children, to long periods of immobilization in many instances does permanent damage.

Is it not more scientific, as well as more humane, first to make a positive diagnosis, when this is possible, and in most instances it is, before we institute any method of treatment?

Whether any case of tuberculosis of the knee joint may be definitely cured with mobility, is doubtful. Surely such would be possible only in a case in which the diagnosis was made very early.

We are forced to the conclusion, from this series at least, that the conservative methods here used have failed to accomplish a cure in all but three cases that were fused by nature. The other cured cases, sixteen, were fused by operation.

The elimination of motion by fusing the knee by operation offers the only means we know of curing the disease, and it should be done early in the disease, and may be done as early as the sixth year without any disturbance of the growth of the leg.

ABSTRACT OF DISCUSSION

Dr. Charles F. Painter, Boston: I was somewhat surprised at the character of Dr. Hibbs' results. My general impression was that the prognosis of tuberculosis in the knee joints of children was somewhat better than that. The point that I think should be brought home to us is that the average period over which we may look for results, which we may perhaps class as cures, is longer than we are in the habit of thinking. The tendency to yield to the importunities of parents to get children out of apparatus and away from supports must be resisted, because the length of time that it is necessary to fix an affair of this sort is certainly longer than our good nature often lets us be convinced that it is. What Dr. Hibbs said about the duration of the period of treatment with the probabilities of having at the end of that time a satisfactory quiescence of the disease is the most significant point in his presentation of the subject. Another point that he made on which I think I should be very shy about agreeing with him is the advisability of any surgical intervention in cases of this sort at the period of time that he believes it is perfectly proper to interfere. I think that surgical intervention with tuberculosis in and about a joint, at the age that he speaks of, is not desirable, except, perhaps, in Dr. Hibbs' hands. The outlook for recovery from tuberculosis has to be based to a large extent on the character of the material being dealt with, and I do not believe that we can take material which is distinctly clinic material and which comes from poor surroundings and base our conclusions on it, or draw inferences from it, quite as well as we can from a more mixed material.

Dr. J. W. Sever, Boston: For years we have been treating tuberculosis of the knee in children in a conservative way by means of Thomas' splints and casts, often without an adequate diagnosis, and calling every swelling of a knee in a child "tuberculosis" of the knee. A certain number of cases may be an infectious arthritis, but we have no means of making a diagnosis without a biopsy on the joint. Lately we have been taking out sections that seem pathologic, and in some instances the pathologist reported, "chronic inflammatory." On the other hand, with the history of treatment continuing over long periods of years, with ultimate function or ultimate results good only in those cases which either have been fused surgically or fused themselves after seven or eight or ten years, with a diagnosis of tuberculosis established, why is it not surgically the best thing to do? Give them a stiff knee even at the expense of growth, and subsequent and consequent disability from treatment covering long periods of years. On the other hand, there are a certain number of cases of perfectly evident and frank tuberculosis in which eventually function in the knee resulted. What cases are we going to select to stiffen, and what cases are we going to select to leave alone, in order that these patients may have some useful function which will be better for them in the end? However, we must not lose sight of the fact that limited function with few degrees of motion is always a source of danger. There is always the possibility of these cases eventually becoming active and giving trouble, necessitating operation. It is a difficult question to determine. Are we going to fuse all cases with the possibility of eliminating eventual joint function, or are we going to take a chance on heliotherapy, with a moderate amount of fixation for a number of years, with the chance that we may or may not get eventually good motion in the knee, but always the possibility of later lighting up as they come into adult life and increased strain? I think Dr. Hibbs is right in theory.

Dr. Z. B. Adams, Boston: Years ago I had a chance to observe children with tuberculosis of the knee and I was strongly impressed with the fact that they did not any of them do well and that any that really had tuberculosis of the knee either went on for years and had a knee that produced abscess, and never got well enough to have any motion, or else fused, which takes a long time and does not occur in every case. I felt that if these children could be put under better conditions, such as they are put under in Dr. Hibbs' hospital, they would perhaps do better. I heartily agree with Dr. Hibbs that a great many of these children are much better off if a fusion is produced by surgical procedure. In these younger children, there is a question with some of them as to whether the tuberculosis is a primary synovial tuberculosis or a tuberculosis that involves the bone. Possibly some of these children that have a simple synovial tuberculosis can be gotten early and treated conservatively by splinting and heliotherapy. Some of them may get well with motion in the knee, but in a large majority of these cases in children, fusion is indicated as soon as the diagnosis of tuberculosis is made. A diagnosis based on the microscopic examination of tissue is not easy to make. Unless we get exactly the right portion of the joint, the pathologist will return a report of chronic inflammatory tissue. Adult cases, every one of them should be fused surgically. I do not believe that there is any such thing as curing an adult case of tuberculosis of the knee. One other point to consider is the growth of the child. If we tie these children up in plaster, at first, perhaps, there is an increase in length, from a stimulation of the epiphysis by the disease; but if we continue that fixation for a number of years, in many cases we get a decided shortening. We also know that if we do a fusion, unless we do it early we are extremely likely to destroy some, if not a good deal, of the epiphysis. That is the reason for doing the operation early: when we can do an erasion, take off the cartilage, the articular surface of the tibia and femur, take out the semilunar cartilages and bring the bones together without disturbing the epiphysis, get a solid fusion and resume use.

ROENTGEN RAY IN TREATMENT OF LOCAL INFLAMMATIONS, CELLULITIS AND CARBUNCLES *

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Two definite types of carbuncle are recognized:[1] (1) the usual superficial type, which is very vascular, shows multiple skin perforations in the early stage, and after sloughing usually does not show a very deep crater; (2) the deep type, in which the mass appears to be fixed almost as in malignancy. In the latter, skin perforation and sloughing occur later in the disease, usually leaving a deep crater. Pus may burrow around through the tissues for several weeks before coming to the surface. This type occurs most frequently on the back of the neck.

Coyle,[2] Ross,[3] Dunham,[4] Richards[5] and Lewis[6] have reported excellent results from roentgenotherapy of carbuncles. Both Dunham and Richards state that nothing in all roentgenotherapy gives more satisfactory results than the treatment of carbuncles. In Lewis' report of sixteen cases only two carbuncles were operated on. He believes irradiation to be the method of choice in the treatment of practically all carbuncles.

Last year I[7] reported the results of roentgen-ray treatment of nine large carbuncles, three localized areas of infection due to other conditions than carbuncle, and one ischiorectal abscess. In all these, an excellent result was obtained. Since that time I have had seventeen other large carbuncles. Fifteen of this series responded beautifully to irradiation. All of these were seen after the carbuncle was well developed and contained, in several instances, one or more small openings in the skin. All were painful, some extremely so. In a few the infection was already limited when first seen. In the majority, however, the carbuncle had not reached this stage and was increasing not only in size but also in the severity of symptoms. In three patients, the pain was more severe for a few hours following the treatment, but this stage was followed by permanent relief from pain. In the other twelve cases there was almost complete relief from pain following irradiation. After treatment, the formation of a central abscess cavity with free drainage was the rule. In a few instances, drainage occurred through several small openings without a large central necrotic area ever forming. In no large carbuncle have I seen the tissues return to normal without some necrosis and drainage; but several authors, especially Dunham, have reported such cases. In all of these fifteen and the previously reported nine patients, pain was almost entirely controlled, and breaking down was more rapid than in carbuncles treated by other methods.

In two other cases, treatment not only did no good, but appeared to do harm. Both were in men between 50 and 60 years of age, in good general health, with no diabetes, increase in the blood sugar, syphilis, cardiorenal or other chronic disease. These two carbuncles were located high up on the back of the neck and ran such similar courses that only one will be reported in detail:

> A man, aged 54, seen after a carbuncle had been present for about one week, had practically no pain and only a slight elevation of temperature. There was a large elevated, indurated, red area which extended from about 2 inches above the hair line downward for about 4 inches, and about 2 inches to each side of the median line. In the center of this mass there was a very small bright red pimple. Just to one side of this pimple a crisscross incision about 1 inch long had been made. Several treatments were given over this area with no effect at all, as far as I could determine. After four weeks the entire area necrosed and sloughed out. Following this, there was a long drawn out recovery. At no time did he have any pain of consequence before or after irradiation. There were never any marked general symptoms. The hole in the back of the neck was very deep, showing that the infection had extended into the deep tissues.

Of course in these cases no one can know what would have happened if irradiation had not been employed, but it appeared that treatment may have delayed breaking down. The inflamed tissues had practically the same appearance for nearly four weeks. These two patients were seen in an earlier stage of development than any of the others I treated. When a large carbuncle involves the very deep structures, it may be that irradiation should not be given in the early stage before there has been any effort whatever at drainage. This applies particularly to carbuncles on the back of the neck. The tough thick skin in this locality seems to prevent the rapid breaking down, discharge and cure that follows radiotherapy of lesions located elsewhere. In these cases, treatment

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Phillips, Sidney: A Dissertation upon Carbuncles, Lancet **1**: 61 (Jan. 8) 1921.

[2] Coyle, R. R.: Odds and Ends of X-Ray Work, Including Some Cases of Carbuncle, M. Electrol. & Radiol. **7**: 139, 1906.

[3] Ross, G. G.: X-Ray Treatment of Carbuncles of the Face, Ann. Surg. **66**: 99, 1917.

[4] Dunham, K.: Treatment of Carbuncles by the Roentgen Ray, Am. J. Roentgenol. **3**: 259 (May) 1916.

[5] Richards, C. E.: Some of the Less Common Uses of X-Ray Therapy, J. Radiol. **3**: 271 (July) 1922.

[6] Lewis, R. W.: A Conservative Treatment of Carbuncles, Ann. Surg. **78**: 649, 1917.

[7] Hodges, F. M.: The Roentgen Ray in the Treatment of Carbuncles and Other Infections, Am. J. Roentgenol. **11**: 442 (May) 1924.

helps to control the pain, but the duration of the disease is probably not materially shortened. In the early stage of this type, complete surgical excision is probably the treatment of choice. When the lesion is located elsewhere than on the back of the neck, the duration of the disease is probably shortened from 30 to 50 per cent.

In the complete series of twenty-six large carbuncles there was no mortality and there were only two cases in which marked benefit did not appear to follow irradiation.

Carbuncle probably kills at times by a long drawn out wearing down of the patient's mental and physical condition. In several instances the patients were not seen until after the condition had existed from four to seven weeks. Clinically, these patients were ill, very fretful, and were gradually losing ground. Locally, the carbuncles showed large craters, from the edges of which some serum and very little pus exuded. Irradiation appeared to be particularly valuable in this type of lesion. Within twenty-four hours there was a copious discharge, followed by local and general improvement.

In several cases of moderate sized carbuncles of the forearm, with red lines of lymphangitis extending nearly to the axilla, the pain was relieved and the red lines gone within from eighteen to twenty-four hours following treatment. I have no definite explanation to offer for the early relief of pain and the rapid disappearance of lines of lymphangitis extending some distance from the area treated, except the mechanical relief of tension in the tissues. This is probably brought about in several different ways. The increased discharge gives better drainage with lessened tension in the inflamed areas. When there are several pus pockets, they are under different tensions and some are more painful than others. Coalescence into one large abscess naturally lessens this tension to some extent. This does not, however, explain many cases in which the pain is entirely relieved before there has been but little softening or discharge. The lymphangitis in several cases has also entirely disappeared before the occurrence of either of the foregoing conditions. In some of the smaller carbuncles in which the pain was quickly relieved, the lesion gradually disappeared without any breaking down or discharge. Moderate doses of roentgen rays are supposed to cause a greater activity of the cells treated and to increase the phagocytic powers of the blood.

Maximow,[8] in a study of the changes in inflamed tissue following irradiation, states that the lymphocytes are probably destroyed almost immediately in an explosive manner. He found a marked depression of the usual reaction of the fibroblasts. Instead of almost immediately forming a new layer of connective tissue around the infection or irritation, they did not divide, or started late and usually divided abnormally. There was an intensive edema of the connective tissue. His study of the effect of irradiation on other tissues does not seem to have any bearing on the treatment of carbuncles. The doses used by Maximow were probably larger than any used in the treatment of carbuncles; therefore, in the latter a less depressing effect on the connective tissues would be expected, while on the other hand, stimulation might occur.

In my work, treatment appeared definitely to limit the infection, but no tissue studies were made. Whatever happens in a carbuncle after irradiation, the immediate effect in many instances is probably too quick for the effect of the ray on connective tissue to have anything to do with it. It may be that the rapid destruction of lymphocytes and the action of the ray on other structures may cause the liberation of a substance that has a marked effect on the inflamed tissues and possibly on the infecting organism.

I have treated only two cases of erysipelas. These were seen the first day that the lesions were noticed and before an area of skin more than 6 cm. in diameter was involved. After treatments, the inflammation rapidly subsided. I would not attempt to treat a severe advanced erysipelas, but believe that irradiation will prove to be of definite value in the early cases.

In chronic infections of the parotid gland, roentgen-ray therapy has given good results. A typical case was that of a child, aged 7, who for several months prior to treatment had had a chronic infection of the parotid with acute exacerbations every three to four weeks. The gland would swell up over night and become very painful. This would last for several days, returning to normal size after about a week. In the intervals between the attacks the gland was tender and somewhat painful. After the first irradiation the gland swelled up and was very painful for thirty-six hours. After a few days it was of normal size, with no pain or tenderness, and there has been no trouble for more than six months. Two other cases responded practically in the same manner. In chronic parotid infections I believe that irradiation offers a great deal, since as far as I have been able to learn, surgical treatment is not very satisfactory.

The following technic was used in the majority of cases: 4 mm.; 9 inch spark gap; eight minutes; 9 mm. of aluminum; 9 inches distance. Half this dose was repeated about the fourth day and again several days later if necessary. For the first treatment, the area included at least 1 inch of healthy tissue around the lesion. The later treatments were directed toward the central part of the lesion. A central necrosis is more apt to follow this technic than it is to follow a general application of the ray to the entire involved area. A small incision was made as soon as any part of the lesion showed softening. Larger incisions seem to delay the usual reaction following irradiation. In erysipelas and in some of the carbuncles, unfiltered rays were used with 4 milliamperes; 7 inch spark gap; three and one half minutes, and 10 inches distance.

SUMMARY

1. In the majority of carbuncles the roentgen ray acts almost as a specific, even in very extensive lesions, when the inflammation is limited largely to the skin and subcutaneous tissues. Pain is usually relieved, drainage enhanced, and a more rapid recovery follows.

2. The deep seated types, especially those occurring on the back of the neck, when treated after the carbuncle was well developed, responded almost as well to irradiation. In two early cases of this type on the back of the neck, no benefit appeared to follow irradiation, and probably a delay in breaking down and healing occurred. In these, complete surgical excision is probably the best method of treatment.

3. Chronic infections of the parotid usually respond to this type of therapy.

4. Roentgenotherapy is probably of definite value in the early stages of erysipelas.

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[8] Maximow, A. A.: Studies on the Changes Produced by Roentgen Rays in Inflamed Connective Tissue, J. Exper. Med. 37: 319 (March) 1923.

them do well and that any that really had tuberculosis of the knee either went on for years and had a knee that produced abscess, and never got well enough to have any motion, or else fused, which takes a long time and does not occur in every case. I felt that if these children could be put under better conditions, such as they are put under in Dr. Hibbs' hospital, they would perhaps do better. I heartily agree with Dr. Hibbs that a great many of these children are much better off if a fusion is produced by surgical procedure. In these younger children, there is a question with some of them as to whether the tuberculosis is a primary synovial tuberculosis or a tuberculosis that involves the bone. Possibly some of these children that have a simple synovial tuberculosis can be gotten early and treated conservatively by splinting and heliotherapy. Some of them may get well with motion in the knee, but in a large majority of these cases in children, fusion is indicated as soon as the diagnosis of tuberculosis is made. A diagnosis based on the microscopic examination of tissue is not easy to make. Unless we get exactly the right portion of the joint, the pathologist will return a report of chronic inflammatory tissue. Adult cases, every one of them should be fused surgically. I do not believe that there is any such thing as curing an adult case of tuberculosis of the knee. One other point to consider is the growth of the child. If we tie these children up in plaster, at first, perhaps, there is an increase in length, from a stimulation of the epiphysis by the disease; but if we continue that fixation for a number of years, in many cases we get a decided shortening. We also know that if we do a fusion, unless we do it early we are extremely likely to destroy some, if not a good deal, of the epiphysis. That is the reason for doing the operation early: when we can do an erasion, take off the cartilage, the articular surface of the tibia and femur, take out the semilunar cartilages and bring the bones together without disturbing the epiphysis, get a solid fusion and resume use.

ROENTGEN RAY IN TREATMENT OF LOCAL INFLAMMATIONS, CELLULITIS AND CARBUNCLES *

FRED M. HODGES, M.D.
RICHMOND, VA.

Two definite types of carbuncle are recognized:[1] (1) the usual superficial type, which is very vascular, shows multiple skin perforations in the early stage, and after sloughing usually does not show a very deep crater; (2) the deep type, in which the mass appears to be fixed almost as in malignancy. In the latter, skin perforation and sloughing occur later in the disease, usually leaving a deep crater. Pus may burrow around through the tissues for several weeks before coming to the surface. This type occurs most frequently on the back of the neck.

Coyle,[2] Ross,[3] Dunham,[4] Richards [5] and Lewis [6] have reported excellent results from roentgenotherapy of carbuncles. Both Dunham and Richards state that nothing in all roentgenotherapy gives more satisfactory results than the treatment of carbuncles. In Lewis' report of sixteen cases only two carbuncles were operated on. He believes irradiation to be the method of choice in the treatment of practically all carbuncles.

Last year I[7] reported the results of roentgen-ray treatment of nine large carbuncles, three localized areas of infection due to other conditions than carbuncle, and one ischiorectal abscess. In all these, an excellent result was obtained. Since that time I have had seventeen other large carbuncles. Fifteen of this series responded beautifully to irradiation. All of these were seen after the carbuncle was well developed and contained, in several instances, one or more small openings in the skin. All were painful, some extremely so. In a few the infection was already limited when first seen. In the majority, however, the carbuncle had not reached this stage and was increasing not only in size but also in the severity of symptoms. In three patients, the pain was more severe for a few hours following the treatment, but this stage was followed by permanent relief from pain. In the other twelve cases there was almost complete relief from pain following irradiation. After treatment, the formation of a central abscess cavity with free drainage was the rule. In a few instances, drainage occurred through several small openings without a large central necrotic area ever forming. In no large carbuncle have I seen the tissues return to normal without some necrosis and drainage; but several authors, especially Dunham, have reported such cases. In all of these fifteen and the previously reported nine patients, pain was almost entirely controlled, and breaking down was more rapid than in carbuncles treated by other methods.

In two other cases, treatment not only did no good, but appeared to do harm. Both were in men between 50 and 60 years of age, in good general health, with no diabetes, increase in the blood sugar, syphilis, cardiorenal or other chronic disease. These two carbuncles were located high up on the back of the neck and ran such similar courses that only one will be reported in detail:

A man, aged 54, seen after a carbuncle had been present for about one week, had practically no pain and only a slight elevation of temperature. There was a large elevated, indurated, red area which extended from about 2 inches above the hair line downward for about 4 inches, and about 2 inches to each side of the median line. In the center of this mass there was a very small bright red pimple. Just to one side of this pimple a crisscross incision about 1 inch long had been made. Several treatments were given over this area with no effect at all, as far as I could determine. After four weeks the entire area necrosed and sloughed out. Following this, there was a long drawn out recovery. At no time did he have any pain of consequence before or after irradiation. There were never any marked general symptoms. The hole in the back of the neck was very deep, showing that the infection had extended into the deep tissues.

Of course in these cases no one can know what would have happened if irradiation had not been employed, but it appeared that treatment may have delayed breaking down. The inflamed tissues had practically the same appearance for nearly four weeks. These two patients were seen in an earlier stage of development than any of the others I treated. When a large carbuncle involves the very deep structures, it may be that irradiation should not be given in the early stage before there has been any effort whatever at drainage. This applies particularly to carbuncles on the back of the neck. The tough thick skin in this locality seems to prevent the rapid breaking down, discharge and cure that follows radiotherapy of lesions located elsewhere. In these cases, treatment

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Phillips, Sidney: A Dissertation upon Carbuncles, Lancet **1**: 61 (Jan. 8) 1921.

[2] Coyle, R. R.: Odds and Ends of X-Ray Work, Including Some Cases of Carbuncle, M. Electrol. & Radiol. **7**: 139, 1906.

[3] Ross, G. G.: X-Ray Treatment of Carbuncles of the Face, Ann. Surg. **66**: 99, 1917.

[4] Dunham, K.: Treatment of Carbuncles by the Roentgen Ray, Am. J. Roentgenol. **3**: 259 (May) 1916.

[5] Richards, C. E.: Some of the Less Common Uses of X-Ray Therapy, J. Radiol. **3**: 271 (July) 1922.

[6] Lewis, R. W.: A Conservative Treatment of Carbuncles, Ann. Surg. **78**: 649, 1917.

[7] Hodges, F. M.: The Roentgen Ray in the Treatment of Carbuncles and Other Infections, Am. J. Roentgenol. **11**: 442 (May) 1924.

helps to control the pain, but the duration of the disease is probably not materially shortened. In the early stage of this type, complete surgical excision is probably the treatment of choice. When the lesion is located elsewhere than on the back of the neck, the duration of the disease is probably shortened from 30 to 50 per cent.

In the complete series of twenty-six large carbuncles there was no mortality and there were only two cases in which marked benefit did not appear to follow irradiation.

Carbuncle probably kills at times by a long drawn out wearing down of the patient's mental and physical condition. In several instances the patients were not seen until after the condition had existed from four to seven weeks. Clinically, these patients were ill, very fretful, and were gradually losing ground. Locally, the carbuncles showed large craters, from the edges of which some serum and very little pus exuded. Irradiation appeared to be particularly valuable in this type of lesion. Within twenty-four hours there was a copious discharge, followed by local and general improvement.

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In my work, treatment appeared definitely to limit the infection, but no tissue studies were made. Whatever happens in a carbuncle after irradiation, the immediate effect in many instances is probably too quick for the effect of the ray on connective tissue to have anything to do with it. It may be that the rapid destruction of lymphocytes and the action of the ray on other structures may cause the liberation of a substance that has a marked effect on the inflamed tissues and possibly on the infecting organism.

I have treated only two cases of erysipelas. These were seen the first day that the lesions were noticed and before an area of skin more than 6 cm. in diameter was involved. After treatments, the inflammation rapidly subsided. I would not attempt to treat a severe advanced erysipelas, but believe that irradiation will prove to be of definite value in the early cases

In chronic infections of the parotid gland, roentgen-ray therapy has given good results. A typical case was that of a child, aged 7, who for several months prior to treatment had had a chronic infection of the parotid with acute exacerbations every three to four weeks. The gland would swell up over night and become very painful. This would last for several days, returning to normal size after about a week. In the intervals between the attacks the gland was tender and somewhat painful. After the first irradiation the gland swelled up and was very painful for thirty-six hours. After a few days it was of normal size, with no pain or tenderness, and there has been no trouble for more than six months. Two other cases responded practically in the same manner. In chronic parotid infections I believe that irradiation offers a great deal, since as far as I have been able to learn, surgical treatment is not very satisfactory.

The following technic was used in the majority of cases: 4 mm.; 9 inch spark gap; eight minutes; 9 mm. of aluminum; 9 inches distance. Half this dose was repeated about the fourth day and again several days later if necessary. For the first treatment, the area included at least 1 inch of healthy tissue around the lesion. The later treatments were directed toward the central part of the lesion. A central necrosis is more apt to follow this technic than it is to follow a general application of the ray to the entire involved area. A small incision was made as soon as any part of the lesion showed softening. Larger incisions seem to delay the usual reaction following irradiation. In erysipelas and in some of the carbuncles, unfiltered rays were used with 4 milliamperes; 7 inch spark gap; three and one half minutes, and 10 inches distance.

SUMMARY

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[8] Maximow, A. A.: Studies on the Changes Produced by Roentgen Rays in Inflamed Connective Tissue, J. Exper. Med. 37: 319 (March) 1923.

ABSTRACT OF DISCUSSION

Dr. Ross Golden, New York: Our experience in the treatment of local nontuberculous infections includes twenty-five cases of carbuncle, sixteen of them on the back of the neck, approximately the same number of cases of furunculosis, and a few cases of cellulitis. Of the twenty-five carbuncles, the records of nineteen were available for study. The average time required for complete healing, that is for epithelization to become complete or practically complete, was forty days. The longest case required eighty days and the shortest eight days. The pain in these cases was usually not relieved after treatment for from twenty-four to forty-eight hours. Sedatives were usually required the first and in some instances the second and third nights. The fever, when it was present, lasted from two to four days. Extension after treatment occurred in three cases. Two pockets localized separately from the main sinus in one case and they had to be opened. Two of the patients were treated following incision. In one instance three incisions had been made, but the extension of the disease was not arrested until a roentgen-ray treatment had been given. The technic used is as follows: 9 inch gap; 3 mm. of aluminum filter; distance 10 or 16 inches, according to the size of the lesion. The amount of rays applied is from two thirds to three fourths of the so-called suberythema dose. To compare this treatment with the usual surgical methods, I analyzed about thirty records. Eleven of these lesions were on the neck, were treated by excision or incision, and had a reasonably complete follow-up. The average duration of postoperative treatment was forty-five days, the longest being seventy-eight and the shortest seventeen days. Two of the thirty surgically treated patients (diabetic patients) died. As a special effort was made to follow the cases treated with roentgen rays, I am inclined to think that the difference in average time of five days in favor of the radiation method is really too small. The records indicate that the time required for the healing of carbuncles varies directly with the size of the lesion, no matter what method of treatment is used. We feel that the roentgen ray has a very definite place in the treatment of carbuncles because (1) it requires no anesthetic, (2) there is much less scarring, (3) the slough separates earlier, (4) no skin graft is necessary, and (5) the healing seems accelerated a little. We apparently have not had the striking relief of pain obtained by Dr. Hodges in his cases. Our results with furunculosis, especially the recurrent cases, have been excellent. However, in two instances in which the process was located in the axilla, the roentgen-ray treatment seemed to be of little, if any, benefit.

Dr. I. S. Trostler, Chicago: I do not know of a condition wherein the results are as satisfactory, if we get our cases early, as in carbuncle. I have treated twenty-one cases of carbuncle. The technic that I used is considerably different from what Dr. Hodges or the other discussants have mentioned, and I rather think that my early relief from pain is a good deal due to the technic. Each case is a law for itself. I give approximately 30 milliampere minutes at 135 kilovolt peak, 8 inches anode skin distance, with 5 mm. of leather and 3 mm. of aluminum filter, and I give but one dose. I have had a few cases (three or four) of diffuse phlegmon. The technic was about the same as that just given, but I have not noticed any marked relief, except possibly from the pain. In furunculosis, particularly in the axilla, I have had six or seven cases with very satisfactory results. I use less filtration there and a little less milliampere minute dosage.

Dr. A. L. Gray, Richmond, Va.: My experience in the treatment of carbuncles is not large, but it has been without exception satisfactory. Since we know that roentgen rays are not directly bactericidal, we advance all manner of theories as to the cause of results in bacterial conditions. Until we do know, it is nothing but theory after all that we can advance, and we have to conclude what the best method is from our clinical experience. I am using a single dose of 9 inch spark gap voltage, 5 milliamperes, 3 mm. of aluminum filler, for about eight minutes at a 10 inch target skin distance. I believe that Dr. Hodges' results on the back of the neck would probably be better if he used a little heavier and little higher voltage dosage.

Dr. Dudley Mackey, Bloomfield, N. J.: I have treated eighty-four cases of carbuncle. I have had good results and a technic similar to Dr. Gray's except for using unfiltered ray. In dealing with the insane it is much more difficult to elicit symptoms; yet in several cases the pain was relieved the first night; in a number of cases from twenty-four to forty-eight hours elapsed before any definite results were obtained. Three cases of multiple sty of the eye were treated. In one case the patient had multiple sties of both eyes, recurrent for about one year, which later came in with swelling of the left cheek. One irradiation was given; the pain was relieved in less than ten hours, and no further treatment was given. After a year there was no return of sties or symptoms. This patient was referred to an oculist and treated by two other physicians before being irradiated, with no results. In four cases of herpes zoster, the pain of three of these cases was relieved within twenty-four hours after treatment. Dr. Hodges spoke of treating erysipelas. We have had in the Isolation Hospital at Essex County, in the last year, sixty-four cases under observation. We had two cases in the insane. Eleven of these cases were treated, while others were observed for comparison. The data are not absolutely accurate, as it would be impossible to select identical cases for control of this type. One patient had an erysipelas involving the face, eyelids, lobes of the ears, and the back to the waist line. In twenty-four hours after the first treatment, the pain was decreased with decided general improvement. This patient was normal mentally. Other cases treated showed decided increase in temperature the first twenty-four hours. After the twenty-four hour period there was a decided decrease in pain and drop in temperature. With the exception of one case, the temperature dropped to normal in thirty-six hours and remained normal until discharge. In observing the patients treated for erysipelas with the roentgen ray, pain was relieved. The time of disease was shortened as compared with cases that were not treated by this method. The data are not sufficient to afford a basis for any definite conclusions.

Dr. Guy R. Harrison, Richmond, Va.: I should like to stress one point made by Dr. Hodges and issue a warning. Speaking as one accustomed to doing surgery about the mouth, any satisfactory method, as far as I know, of handling certain chronic low grade infections of the parotid is not known. One of the parotid cases in which the history was given was a case of mine which Dr. Hodges was kind enough to treat for me, and the method certainly offers a great deal. The warning is this: One should select and treat cases of the parotid with great care. If not, there will probably be the complication of salivary fistula.

Dr. Fred M. Hodges, Richmond, Va.: In addition to the early relief of pain mentioned by Dr. Trostler, one of the most satisfactory things that we have had to deal with in roentgen-ray therapy is the late carbuncle which has already had surgical treatment, in which there is a gradual extension of the outer limits of the infection, with a serous discharge from the edges of the crater, but with very little pus discharge. We have had several carbuncles of this type, the lesion having been present for two months or more. Frequently within twenty-four hours after one treatment there is a heavy discharge of pus and the patient is in a better clinical condition. From this point on there is an uneventful recovery. We are glad Dr. Harrison could discuss chronic parotitis, since we believe that every one of these cases should be seen by an oral surgeon or some one perfectly familiar with this type of lesion, before irradiation is considered. We understand that it is very difficult in many cases to get a good result surgically and that occasionally branches of the seventh nerve are injured in attempting to remove a chronically infected parotid. As to technic, Dr. Richards of Toronto uses an unfiltered ray and seems to get better results than any one else. We have been trying this recently and believe that in the superficial carbuncles an unfiltered ray gives quicker relief from pain. In early erysipelas when only a small area of skin is involved, we believe that the roentgen ray offers a good deal, but would not attempt to treat an advanced serious erysipelas, with a large area of the body involved, a high temperature and a general infection.

OCULAR MUSCLE BALANCE FOLLOWING PROLONGED MONOCULAR OCCLUSION *

C. S. O'BRIEN, M.D.
INDIANAPOLIS

The use of prolonged monocular occlusion as a means of uncovering and diagnosing latent ocular muscle imbalances, as devised and employed by Dr. F. W. Marlow of Syracuse, N. Y., is undoubtedly, to my mind, one of the most useful and satisfactory tests added to the armamentarium of the ophthalmologist in years.

The various methods of testing for muscle imbalance and the many differences of opinion among ophthalmologists as to the treatment give proof that we should welcome any method which we think will add to our accuracy and which will allow us to make more comfortable many patients with asthenopia who have hitherto been unrelieved in our hands.

This test is comparatively new to most of us. It was devised by Dr. Marlow and employed by him for several years, although just recently has it been brought before the medical profession at large.

Orthophoria or muscle balance with a minimum of nervous impulse is a condition found about as rarely as emmetropia. However, a great percentage of the imbalances are low errors and are overcome without symptoms on the part of the person possessing them. It is only in cases presenting some other type of pathologic change, which affects the ocular muscles or their innervation, or in those in which the errors are great enough to necessitate a constant, marked spasm of the muscles in order to maintain binocular single vision, that we have need for employing this test.

OBJECT OF THE TEST

By the use of prolonged monocular occlusion we break up the necessity of and the desire for binocular single vision and consequently allow each eye to seek its own relative anatomic position of rest—this may be one of parallelism or not. It is unnecessary for the fusion center to send forth impulses to bring the two eyes into perfect alinement, there being no need for parallelism since we have only monocular vision. Thus, we break up the need for action on the part of the fusion center and bring out any latent imbalance that has not been manifest so long as the two eyes were in action at the same time.

Provided vision is good in either eye and the fusion sense is developed, there is always the desire for binocular single vision; and if there is any deviation from this we find the usual trend of symptoms ensuing; namely, blurred or double vision, dizziness, headaches, vertigo, even difficult locomotion and vomiting. If single vision is maintained with difficulty by the extra expenditure of nerve force and chronic cramp of one or more of the extra-ocular muscles, then there are presented symptoms of a muscular asthenopia. This seems to be more or less analogous to the constant cramp of the ciliary muscle seen in hyperopia and hyperopic astigmatism, in which there is a constant overexpenditure of nerve force necessary to keep the ciliary muscle contracted, in order that the individual may see distinctly even for distance.

Now in the case of the ciliary muscle—to arrive at what most of us think is the total error of refraction—we place the muscle temporarily at rest with a cycloplegic. Why not put the extra-ocular muscles, i. e., those contractions which are necessary to the maintenance of binocular single vision, at rest by closing one eye and consequently stopping all desire for binocular single vision and, in this manner, allowing each eye to seek its own relative anatomic position of rest? This must be the result of occlusion of one eye; if there is a latent deviation from parallelism, then this should and evidently does become manifest. That this does take place, usually beginning almost at once following occlusion, will be seen from the results of the tests for muscle imbalance.

INDICATIONS FOR USE OF THE TEST

A goodly number of persons with asthenopia fail to obtain relief when tested by capable refractionists, and many times we have been at a loss to understand just why a very careful refraction under a cycloplegic, accompanied by our usual muscle tests, has failed to bring the desired results. It is in just this class of cases that we get the most gratifying results from prolonged monocular occlusion. Oftentimes after a few hours occlusion we will note great relief and marked amelioration in the symptoms presented by the patient, and if this occurs we feel that we are on the right track.

It is neither necessary nor advisable to use this test as a routine measure in all cases of asthenopia presenting themselves to us. Experience teaches us, however, that it is wise to use prolonged monocular occlusion in those cases coming under the following types:

1. Those patients who have been wearing glasses which properly correct their refractive error, and yet continue to suffer from symptoms of asthenopia, headaches, etc. Of course, this may be accommodative, but we should certainly rule out the extra-ocular muscles.
2. Patients with transitory or prolonged blurred binocular vision, although each eye sees clearly when functioning alone.
3. Persons who have as much or more discomfort in distant vision as in accommodation. Accommodation does not seem to have a great bearing on the aggravation of symptoms produced by muscular imbalances, except in cases of convergence insufficiency.
4. Those who suffer from occipital headaches and pains, which extend into the back of the neck and shoulders.
5. Patients who have pronounced symptoms of ocular fatigue and asthenopia during or following the observation of motion pictures. In some of these cases the headache will follow the morning after having been to the theater.
6. Patients with very little or no refractive error, but who have pronounced symptoms. Many of these are in the so-called neurasthenic type of individual.
7. Those with headaches following a day in the stores and shops—the so-called "bargain counter headache."
8. Persons who are disturbed and have headaches, vertigo, etc., when riding on trains or other rapidly moving vehicles.

There is no doubt that different states of health determine the intensity of symptoms from muscle imbalances. Large errors in persons enjoying good health may be overcome and cause no symptoms. Small errors, which have been carried comfortably for years, may cause a great amount of trouble should the patient have an upset or contract some debilitating disease. Also the amount of use of the eyes determines to a certain extent the degree of discomfort experienced.

The menopause, nasal pressure, and sinus disease (especially of the ethmoids and sphenoids), as well as general asthenia and debility, are a few of the more frequent conditions causing discomfort from an imbal-

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* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

ance, which formerly has been carried by the patient without the manifestation of symptoms. Also, neurasthenic patients bear muscle errors badly.

METHOD EMPLOYED

Previous to deciding whether it is necessary to use prolonged monocular occlusion I take the muscle balance for distance and near in the usual way; i. e., with the Maddox rod cover test, checked by the parallax. This is done at the first visit, with the patient's manifest correction before the eyes. Again, the balance is taken at the next visit, with the full correction and the eyes under a cycloplegic. At the postcycloplegic examination, the balance is again taken with the correction that we intend to prescribe. By this time one has a good working idea of the state of the manifest ocular balance and usually can decide whether it will be necessary to use prolonged occlusion or not. If it is decided to use this method, I explain it fully to the patient, and, with his consent, I first use the short period of occlusion. This period is from two to three hours, and is usually carried out in the office. The patient wears his full correction in front of one eye and a patch over the other. I have no objection to the patients' leaving the office, but often they prefer to remain there on account of their appearance. If I desire to prescribe following this test I may do so; if I am not satisfied, I may ask the patient to allow me to use the longer period of occlusion.

Absolute monocular occlusion during the whole period of time consumed by the test is necessary, if one may rely on the results, and, although Dr. Marlow has adopted a method of making opaque one of the lenses which the patient wears, I feel that a black eye patch, a bandage or some other method of total occlusion is the better procedure. By this method one is sure that the patient does not see with the occluded eye; while if he wears only an opaque lens over one eye, there is nothing to prevent his looking above, below or to the side of the lens. If he does this it is just as necessary that he maintain binocular single vision as if his eyes were directed straight ahead; consequently he will get the excessive nerve impulse and overcontraction of the muscles and, if this should be the case, the whole value of the test is nullified. Also, if wearing only the lenses, one being opaque, there is an excellent opportunity to break up the test by failure to get the glasses in place before opening the eyes following sleep, and while washing the face. I make the patient wear the patch at all times, day and night, and if it becomes too uncomfortable it may be changed, but I do not allow the patient to do this.

The period of time over which the patient has worn the patch having elapsed, he is seated in a darkened room at a distance of 6 meters from the muscle light, and asked to close both eyes and keep them closed until notified to open them, the patch is removed, and the trial frame carrying the full correction is placed in position. Care must be taken to center properly each lens, for in lenses of moderate or high strength an artificial phoria may be created by the prismatic action of decentered lenses; especially is this true in cases of anisometropia and antimetropia. With the red Maddox rod before the better seeing eye, or over either if there is no appreciable difference in vision, and a small cardboard held in front of this, the patient is asked to open both eyes. He is directed to look at the light, then the cardboard is shifted to cover the other eye and he is told to note the red line. As soon as this is fixed in his mind, the card is shifted back in front of the originally covered eye. The patient is instructed that the card will now be removed momentarily, that he will see both the light and the line at the same time, and that you wish him to note the relative position of the two; i. e., whether the line is above the light or below it when testing for vertical imbalances, and to the right or left when testing for lateral errors. By using the Maddox rod cover test we expose the two eyes simultaneously for only one or two seconds, and our test is more accurate. I have found that by covering and uncovering the eye in front of which we have placed the Maddox rod it seems that the patient locates the light and line more readily, and hence the response is quicker. Prisms that cause the line to run through the light may now be placed before the eyes, thus measuring the error. A final check made with the parallax completes the test; i. e., in the primary position. This should be followed by repeating the test in the cardinal directions of the gaze, although I must admit that I do not always do this.

Ordinarily very soon (just a few seconds) after both eyes are opened, following completion of the test, binocular single vision is established, the manifest error becomes latent again, and we cannot make it manifest without reapplying the patch.

DURATION OF OCCLUSION

The period of time over which one should prolong the occlusion to get a working result is questionable and is undoubtedly different in each individual case. Dr. Marlow has established the fact that after one week's occlusion the results are found to be quite satisfactory in practically all cases. It has seemed to me that if this period of time can be shortened materially and yet much of the value of the test preserved, it will become a great deal more useful as a more or less routine procedure. Often there is great difficulty in overcoming the objections of patients to wearing the patch over a prolonged period of time. Some object on account of the appearance (especially women), some on account of the inconvenience, some from lack of understanding, and others on account of the itching that accompanies the patch or pad. These are probably some of the reasons for Dr. Marlow's substitution of the opaque lens. If we could get an attachment for spectacles, which would give us occlusion around the edges of the lenses, thus shutting off the uncovered portion between the lenses and the face, that would be more or less ideal.

I have kept the patch on for many different periods of time, varying from one hour's occlusion up to that of a week. I find in a great many cases that, following an occlusion of from two to three hours, I have been able to give a correction which has relieved all symptoms. With short periods of occlusion it seems to me that the vertical errors came out more readily than the lateral ones; also it has appeared that, as a usual thing, patients get more relief from the correction of these vertical errors than they do from the correction of the lateral ones, unless they are very marked. In fact, the correction of a vertical error often gives complete relief when a moderate lateral imbalance remains uncorrected.

I have found some cases in which the correction prescribed following the shorter period of occlusion did not give relief, but when the longer period was used I was able to prescribe glasses that did give complete comfort.

There is no hard and fast rule that one may recommend as to the time over which occlusion should be prolonged. It is better to use the longer periods of time, but there is so much objection to this on the part of a great many patients that often I am forced either to shorten the period or abandon the test altogether. For this reason I have tried to shorten the period of time consumed and have used the two to three hour method in the office in cases in which I was not allowed to use the longer period of occlusion. I have seen patients, examined in this manner, show a surprising amount of hyperphoria, exophoria or both following removal of the patch.

TREATMENT

In my limited experience it seems to me that the vertical errors are more potent in the production of discomfort than the lateral ones, and I have found very often that the partial or full correction of a vertical imbalance will have a beneficial effect in assisting Nature to overcome, without discomfort, any accompanying lateral imbalance; at any rate, there has been a lessening of the manifest lateral error, and the symptoms of muscular asthenopia have disappeared. Especially is this true if, after having corrected the vertical imbalance, I prescribe exercises for the lateral muscles. There is a doubt in my mind as to how much effect these exercises have on the lateral muscles; but they undoubtedly are of assistance in giving the patient something to do and to keep his mind occupied while he is becoming accustomed to new lenses.

In practically all cases of vertical imbalance, I make use of a prism grinding in one or both lenses. As to the amount of the hyperphoria, found following monocular occlusion, to be corrected, there is no specific amount to recommend. Generally I correct about two thirds of the error in the first prescription, but occasionally it is better to give only one half; then, again, it will be found necessary to give the full correction. As a usual rule, if the shorter period of occlusion is the one on which the prescription is to be based, I am inclined to give a full correction, feeling almost sure that the short period has failed to bring out the total latent error. In cases in which the longer period of occlusion has been used, it is better to make the first prism correction from one half to two thirds of the total error uncovered. It has been my experience that the correction of quite small latent errors will often give a patient great relief.

I often try out the prescription that I have decided is best by placing it (lenses and prisms) in a trial frame and allowing this to be worn for an hour or so. The prism may be varied during this time, and thus I may find the one that gives the patient most comfort; it is not by any means the rule that the full correction of a muscle imbalance is the most comfortable to wear. However, in some cases, prisms cause discomfort at first, but the continual wearing of them gives complete relief. I see patients who are wearing an accurate correction for their refractive error and in whom prolonged occlusion shows a latent imbalance. In order to determine the exact amount of prism to prescribe, I often place prisms from the trial case over one or both lenses and fasten them with small pieces of adhesive tape. Each prism may be worn any length of time desired and may be changed at will. In this way, I arrive at the correction that I think is best.

Occasionally, prolonged occlusion will uncover a very high error, very little if any of which has been manifest to the ordinary methods of examination. In some of these it is possible to get a better result from operative intervention, especially in the exophorias, than from the constant wearing of prisms. One can approximate parallelism by operation and use low degree prisms following this in order to get a more accurate correction.

Most of the cases of imbalance fall into the class which may be treated successfully by the constant wearing of prisms, and it is in these that we seem to get our most gratifying results.

SUMMARY

Prolonged monocular occlusion is a great aid in uncovering latent ocular imbalances. It makes it possible for us to give comfort to many patients who have suffered from a persistent asthenopia in spite of repeated careful refractions. In many cases it brings out a surprisingly high degree of imbalance, in which by the ordinary methods of testing we have been able to find only an orthophoria (functional).

Occlusion must be absolutely continuous over the whole period of time selected. I realize that usually the shorter periods do not bring out all the latent imbalance; but the amount they do bring out often gives us a basis on which to prescribe in such a manner that our patient is given complete relief from many distressing symptoms. Many patients will object strenuously to the longer periods of occlusion, and yet they will allow us to use the shorter ones. If we are to make daily use in our offices of this very valuable test, I feel sure that the shorter periods of time must be selected in the larger percentage of cases.

Another important point is in the actual testing of the muscle balance following occlusion. The correcting lenses must be properly centered in front of the patient's eyes before placing the Maddox rod. Care taken here will preclude the possibility of an artificially created phoria.

This test gives a basis on which to treat cases of extra-ocular muscle imbalance more or less similar to the basis for the treatment of refractive errors following cycloplegia. With the cycloplegic, we place the ciliary muscle at rest; with the monocular occlusion, we allow the eyes to seek their relative anatomic position of rest. It stands to reason that this position would be the one of comfort, and, if there be an imbalance, this would be the position to allow the eyes to approximate by the use of prisms, operations or what not if relief is to be obtained. If there is an imbalance, one certainly could not hope to find this position while both eyes were functioning simultaneously, for the desire for binocular single vision, provided the vision is good and the fusion center developed, is too great to allow the eyes to attain the position of rest. It is the prolonged monocular occlusion that allows the eyes gradually to seek the position of rest.

This test is not a routine one and is not necessary in all cases; but in selected patients it has proved to be an only means of relief and can be very highly recommended.

503 Medical Arts Building.

ABSTRACT OF DISCUSSION

Dr. F. W. Marlow, Syracuse, N. Y.: For some time after I began to use this method I was in doubt as to whether my failure to discover faults in the muscle balance was due to my lack of sufficient precision in the use of the ordinary tests, and whether other men of more skill and experience than myself might not be able to solve these problems by less clumsy methods than the "prolonged occlusion test." But

I found that other men had essentially the same experience as I had. In a large majority of these cases failure is due to the inadequacy of the ordinary tests to reveal the true state of the muscle balance. The test is not a routine one. It is called for only in cases of failure to relieve symptoms by the correction of demonstrable errors. I doubt the value of such short periods of occlusion as Dr. O'Brien describes, and I fear that if these short tests do not bring the "prolonged occlusion test" into disrepute, they will at any rate greatly lower its value. The difficulty of getting patients to adopt and carry out this test satisfactorily can easily be exaggerated. The essential thing is that they shall be made to understand the nature of it. It is my impression that the aversion to the prescription of lateral prisms, which seems to be prevalent, is ill founded. Some of my most striking cases have been those in which the prescription of such prisms was the means of solving the problem. The experience I have had with this test has entirely destroyed my confidence in the findings of the ordinary short tests, except in one respect. When exophoria is shown either by the screen and parallax, diplopia or rod test, exophoria is present, but its degree and the presence or absence of hyperphoria are still unknown. When the ordinary tests show orthophoria, the true muscle balance may be orthophoria or any form of heterophoria. Thus, of 154 cases of preocclusion orthophoria, only thirteen remained orthophoric at the end of the occlusion period. Finally, it seems reasonable to suggest that the origin of eye symptoms should be looked for first of all in the visual apparatus itself, and therefore it would seem advisible, before turning the case over to the rhinologist, the neurologist, the psychanalyst or the internist, and before the patient is tempted to resort to any of the prevailing cults, that an adequate prolonged occlusion test should be carried out.

Dr. S. J. Beach, Portland, Maine: Some criticisms of the prolonged occlusion test that I have seen give too much consideration to minor objections that do not hinder its practical usefulness. One is that the analogy to cycloplegia is inexact presumably because refraction with a cycloplegic becomes dynamic the moment the occluded eye is uncovered and binocular vision is resumed. It also might be questioned whether there actually exists "a stable condition of rest." Certainly the familiar variation from morning to night or after infectious diseases, in the deviation of an eye which is amblyopic and without possibility of fusion power, makes this doubtful. In spite of these theoretical considerations, I have found prolonged occlusion of practical value in some obscure cases. One use, the reverse of that pointed out in the paper, is to indicate the removal of prisms that are not needed. I have just seen a patient for whose relief several colleagues had prescribed vertical prisms of increasing strength until last fall she was wearing with constant distress 5 degrees split between the two lenses. This was apparently justified, as at that time my tests indicated a vertical imbalance varying from 4.5 to 8 degrees. Under prolonged occlusion, however, the error dropped to 2 or 2.5 degrees, an amount which many subjects carry without discomfort. This patient reports that for distance she has since been able to discard prisms much of the time and never requires more than 1.5 degrees for perfect comfort. I find that occlusion is liable in neurotic patients to exaggerate the previous complaint beyond endurance. We do not wish our patients so annoyed without assurance of benefit. Therefore, in determining more exact indications for this test, Dr. O'Brien has made a valuable contribution.

Dr. Walter B. Lancaster, Boston: There is another diagnostic point which has not been emphasized, and that is the value of the prolonged cover in deciding whether the defect in the balance of the two eyes is the cause of the symptoms, or not. By covering one eye, we eliminate the necessity of working the two eyes together. There is no longer any need of fusion when one eye is covered; hence there is no strain from producing fusion, because there is no necessity of overcoming the heterophoria. At first thought one might conclude that this would promptly relieve the symptoms due to that necessity; and, in fact, it does relieve them in many cases, but not in all. As Dr. Beach has intimated, the simple fact of wearing a cover in itself produces a good many symptoms in the neurotic cases; so that a negative result, that is, the lack of improvement on wearing a cover, is not by any means conclusive evidence that heterophoria is not causing symptoms. On the other hand, there are many cases in which one does get great relief; and the patient is then easily convinced that the working of the two eyes together is really at the bottom of the trouble. I have used the cover for the diagnosis of heterophoria more than twenty-five years; I do not remember where I got the idea. It does not seem to me to be quite as important as a diagnostic means as its advocates have asserted. In using the prolonged cover test, we must not conceive of the aim of the test as a device to secure complete relaxation, and so determine the position of rest analogous to the condition of relaxed accommodation under cycloplegia. The image falling on the retina stimulates the act of fixation, and the stimulus goes to both eyes. If we wanted to get the position of the eyes when relaxed or at rest, we could take the position under ether, or in sleep. All we want is to get the position of the eyes taken when stimulated by the normal reflex act. As Dr. Beach has said, it is not a condition of rest—it is a condition of binocular activity.

Dr. William Zentmayer, Philadelphia: Dr. Fink, a student in the university graduate school, took this subject for his thesis, and I would like to repeat some of his conclusions as I recall them. He found, as have Dr. Marlow and Dr. O'Brien, that the occlusion test certainly showed latent error in the majority of cases, and that this was probably the cause of the symptoms manifested. However, he had almost as large a group, I think, in a second class of cases that came to the hospital simply for the removal of a foreign body or a slight conjunctivitis. He used the occlusion test on this class, and found similar varying degrees of imbalance in those cases having no asthenopic symptoms such as he found in the group who had symptoms. This brings up the question as to whether these latent errors are really to be looked on as the cause of the symptoms in the vast majority of cases.

Dr. C. S. O'Brien, Indianapolis: As to the length of occlusion, I am frank to admit that the longer period of occlusion is the one that brings out a complete state of rest. However, the shorter the occlusion, the better the patient likes it. We have found in a number of cases that occlusion for two or three hours has given a satisfactory result to the patient, and it has also satisfied me. As to the amount of vertical phoria which the patient can carry, it has been my experience that a patient cannot carry these errors when they are of such high degree as we sometimes think. In other words, we find we get quite as good results in the smaller grades of error. The patients do not complain. If the patients complain too much, we have them return to the office and change it to the other eye. There is liable to be itching, and in hot weather perspiration and it makes them feel very uncomfortable. As to Dr. Zentmayer's remarks citing Dr. Fink's paper regarding the foreign body cases which showed almost the same percentage of vertical error, one of the points I brought out was that delicate persons were unable to carry an ordinary or a small amount of phoria comfortably. Perhaps these cases of foreign body came to the hospital from the Baldwin Locomotive Works and could carry more error comfortably than persons who came with an asthenopic condition.

Biochemistry.—In 1919 a chair of medical chemistry was founded at Edinburgh, and in the same year a chair of chemical physiology was endowed at Glasgow. . . . At Cambridge the Sir William Dunn Trustees have endowed the chair of biochemistry held by Dr. Gowland Hopkins, have built and equipped a fine school of biochemistry, and have given further endowment for upkeep and research expenses. At Oxford the Rockefeller Foundation of New York has given a new building for biochemistry which is already planned and begun. A new biochemical department has been provided also at University College Hospital, London, as a result of the munificence of the same foundation.—Report of the Medical Research Council for the Year 1923-1924.

IMMEDIATE METABOLIC DISTURBANCES FOLLOWING DEEP ROENTGEN-RAY THERAPY

II. PREVENTION AND TREATMENT OF UNTOWARD REACTIONS *

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AND
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DETROIT

Rapidly developing tissue changes after exposure to intense irradiation are manifested by systemic reactions, such as nausea, salivation, vomiting, malaise and sometimes by chills and fever. These usually begin within the first hour and last from several hours to several days, being accompanied by complete loss of appetite. It is only these early effects that are to be considered in this communication. Although not dangerous to life, the acute illness is so disagreeable that the course of treatment may be seriously interfered with. Its occurrence and its relation to the areas treated are illustrated in Table 1.

Although the treatment of this reaction cannot be satisfactorily worked out until its etiology is demonstrated, it does justify therapeutic tests with various agents when these are of such nature that the response to them gives indirect evidence as to the factors concerned in etiology. In a preliminary communication [1] it was found that the compensatory acidosis following the initial alkalosis usually protected the patient against severe reactions on the second day. Further, it was demonstrated in a small series of patients and dogs that the immediate illness might be counteracted by substances which in physical and biologic systems protect the cell by decreasing its permeability, namely, ether anesthesia, morphin and calcium salts.

PRESENT STATUS OF THERAPY

1. *Symptomatic Treatment.*—Schmitz [2] emphasizes the importance of treating various symptoms as they arise. He suggests the elimination of toxic proteins through diuresis and catharsis. Acidosis is treated with sodium bicarbonate, physiologic sodium chlorid solution and glucose solution. Alkalosis is treated with mild acids, as orange and lemon juice. Nausea and vomiting are counteracted by large doses of bismuth subnitrate.

2. *Elimination of Noxious Gases.*—Pfahler,[3] Scholz,[4] Wintz [5] and Mallet and Coliez [6] all feel that ozone, or ozone in combination with other noxious gases produced by high tension currents, is responsible for the early reaction. Consequently, they eliminate these gases by the use of masks, ventilation of the room, and the placing of the roentgen-ray tube in a separate closed compartment. These measures have been helpful but have not eliminated the reaction, as is shown in our series of cases. Further, Pfahler's observations on patients and guinea-pigs receiving the gases but not the roentgen ray are in accordance with the more generally accepted view now that these gases are at most only one factor in the etiology.

3. *Alkali Therapy.*—Following the work of Lang,[7] in 1916, suggesting acidosis as the cause of the constitutional symptoms, alkali therapy was given a trial by Pfahler, Schmitz and others. Sodium bicarbonate was used both orally and intravenously. The results of this treatment were always questionable or definitely nonbeneficial. Our preliminary work,[1] showing that acidosis is only a compensatory reaction noted in the latter part of the first twenty-four hours when moderate dosage is used, makes alkali therapy illogical. It would, indeed, bear out the contention of patients that sodium bicarbonate brought on the reaction in many instances.

4. *Acid Therapy.*—The work of Hussey,[8] demonstrating an alkalosis following an intense irradiation, brought about the use of various agents to restore the normal acid base equilibrium, the most commonly used perhaps being hydrochloric acid given by mouth. As mentioned above, Schmitz recommended organic acids in the way of orange and lemon juice.

5. *Sodium Chlorid.*—Schlagintweit and Sielmann [9] demonstrated that the sodium chlorid content of the blood serum after roentgen-ray treatment was low, and on this basis treated irradiation sickness with a 5 per cent. solution of sodium chlorid intravenously. They found that sodium chlorid was ineffective as a prophylactic measure and that calcium chlorid was ineffective both in prophylaxis and in treatment. Cori and Pucher [10] emphasize the marked chlorid retention as compared to water excretion. This work has recently been confirmed by Cameron and McMillan,[11] who find that sodium chlorid prevents or lessens the acute illness

TABLE 1.—*Patients Showing Reaction*

Series	150	Abdominal area	16
Reaction	60	Reaction	14
Percentage	40	Percentage	87.5
Neck area	24	Pelvic area	47
Reaction	2	Reaction	25
Percentage	8.3	Percentage	53.2
Chest area	35	Other areas	28
Reaction	13	Reaction	7
Percentage	37	Percentage	25

Anderson and Kohlmann [12] find that both potassium and sodium pass from the blood into the tissues, and they are led to believe that this excess in the cells of the vegetative nervous system causes the illness. If this work is accepted, sodium chlorid in therapy would be contraindicated except as it might produce diuresis.

Nevermann [13] found sodium chlorid helpful especially when administered intravenously, but feels that cognac is a better remedy.

Sielmann [14] used salt enemas and a 10 per cent. solution of sodium chlorid intravenously, successfully. However, he found that a 25 per cent. solution of glucose gave an equally striking result. Prophylaxis with both salt and glucose failed. Along the same line,

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* From the departments of roentgenology and pathology, Henry Ford Hospital.

* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

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Stegjskal believes that the action of sodium chlorid is only that produced by any hypertonic solution. Czepa and Hogler[15] do not consider the findings of Sielmann and his co-workers conclusive, and feel that the benefit derived from the use of sodium chlorid depends on the diuresis produced.

6. *Calcium Chlorid.*—Anderson and Kohlmann use this salt in therapy because they feel that it counteracts the storing of sodium and potassium salts in the tissues. Dodds and Webster[16] used calcium chlorid with some success, following the work of Anderson and Kohlmann, without drawing any conclusions. Pape used the same salt in combination with sodium chlorid and urea, reporting considerable success.

7. *Narcotics.*—Pape,[17] working on the theory of excitation of the vegetative nervous system, tried to reduce it by the use of sedatives and hypnotics, including calcium in combination with sodium chlorid, chloral hydrate and sodium bromid. In our preliminary animal experiments, morphin was found to prevent entirely the acute illness. Ether anesthesia prevented or reduced the illness. In the work of Hall and Whipple,[18] in which morphin was used as a sedative, the immediate reaction was not noted.

Simons[19] sought a drug that would decrease the excitability of the whole nervous region supplying the digestive tract, and found that the tincture of valerian gave some relief, in that the vomiting but not the nausea was controlled.

8. *Endocrine Therapy.*—Hirsch[20] is the chief exponent of endocrine gland therapy as a prophylaxis in irradiation sickness. He was lead to this line of therapy when he found that a stimulating dose over the hypophysis decreased the irradiation sickness following subsequent deep roentgen-ray therapy. Extracts of the anterior lobe of the pituitary body were found to decrease the symptoms. Epinephrin was also used with success, especially in combination with the extract of that ductless gland nearest the site of irradiation.

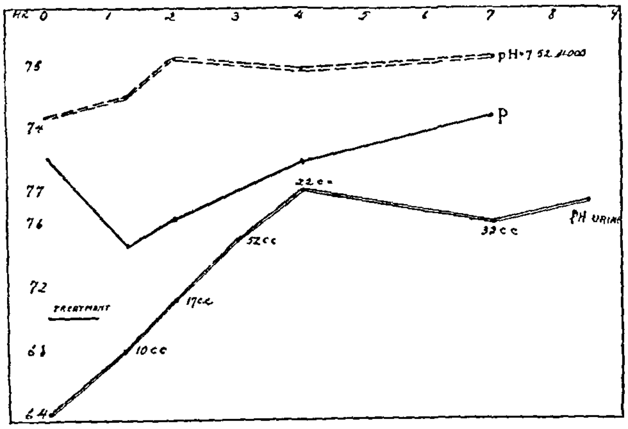

Chart 1 (normal dog) —A normal dog weighing 18 kg was given four human erythema skin doses over the left flank through an area 20 by 20 cm The usual salivation, vomiting and malaise were observed In addition there was elevation of the p_H of the blood to 7 52 The urine changed from acid to alkaline, with a p_H reaching as high as 7.7. There was a sharp dip in the inorganic phosphate curve of the blood, with recovery later. There was a reduction in the total output of urine and a slight decrease in the nonprotein nitrogen

Hirsch particularly emphasized that narcotics are absolutely to be avoided in treating irradiation sickness, since they have an inhibiting effect on the action of organ extracts if not entirely neutralizing it.

It is evident from the foregoing review that the rationale for the various forms of treatment is founded on various theories, some of which are altogether incompatible. This is particularly true of the various theories on which sodium chlorid therapy is used and the theories relating to the use of narcotics and endocrine extracts. Sufficient work has not been done to establish the metabolic changes produced by the roentgen ray, and no work has been done to find how these metabolic changes are altered when the various agents suggested are administered.

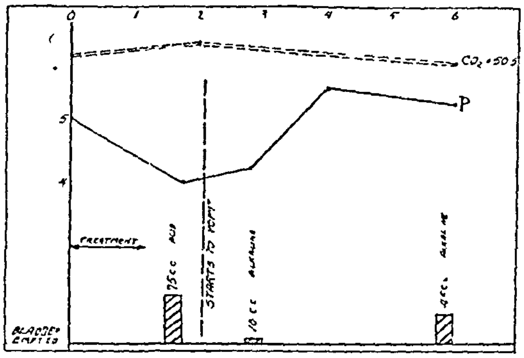

Chart 2 — Irradiation over chest: A normal dog weighing 18 kg was given eight and one half human erythema skin doses over the right chest The entire abdomen was protected from the rays. This heavy dose over the chest produced the immediate sickness, but with no later effects, as is seen after treatment over the abdomen The typical dip in the inorganic phoshorus is present The urine excretion was depressed two hours after treatment

In our preliminary communication[1] it was suggested that the immediate systemic symptoms, at least, were due to strong organic bases and other toxic decomposition products evolved from the nuclear injury or destruction. With this as a basis, work has been continued along three lines: (1) further investigation of alkalosis; (2) investigation of possible respiratory origin of this alkalosis, and (3) investigation of various agents to alleviate the illness.

1. *Further Investigation of Alkalosis.*—The previous work, that is the alkalosis of the blood determined by Meyer's colorimetric method, was confirmed. This alkalosis sets in within one hour of the irradiation and persists if the dosage is intense. Variations of 0.11 were observed, and the results were consistent, in that the change was always toward increased p_H.

Catheterized specimens of urine before treatment were invariably acid to litmus. Within a two hour period after treatment, the reaction became consistently alkaline and remained so for days.

The recent work of Rous,[21] using indicators to show the reaction within the tissues, was applied to find out what the tissue reaction to irradiation was and to see whether it supported the finding of alkalosis in the blood. Three indicators suggested by Rous were used; namely, litmus, cresol red and phenol red.

Litmus buttons were produced in six white rats and two white rabbits, the directions of Rous being followed closely. In each rat, at the end of four or five days, a rosy red hue developed in an area about the button from 2 to 4 cm. in diameter. With the rats, three were irradiated over the entire body and three were kept as controls. Within one hour of the treatment, the color surrounding the button changed to purple or orchid. The latter color was permanent and grew deeper, until at the end of five days it was a distinct blue such as develops in control animals after death.

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[19] Simons, A: Strahlentherapie **14**: 106, 1922

[20] Hirsch, Henri. Zentralbl. f. Gynäk. **48**: 76 79 (Jan 19) 1924

[21] Rous, Peyton: J. Exper. Med. **41**: 379, 399 (March) 1925; **41**: 451 (April) 1925.

With the rabbits, similar technic was followed except that two buttons were made, one over the shoulders and another over the rump. Only the buttons over the shoulders were irradiated, after a rosy hue had developed at the end of five days. However, within an hour both buttons began to take on a purple tint, and at the end of twenty-four hours both areas were reddish blue. In ten days the areas were a distinct blue.

Cresol Red: Eight white rats were injected intraperitoneally with cresol red. Four were immediately irradiated and four were kept as controls. In the control animals the dye appeared in forty minutes, giving a light red color best observed in the ears, nose and eyes. The color persisted for only three hours. The four irradiated animals, after exposure of the entire body, showed good staining in twenty minutes. Fifteen minutes after the completion of the irradiation, the staining was distinctly of a darker hue than that observed in the untreated animals. The dye was also excreted earlier than in the untreated animals, apparently all disappearing within a two hour period.

Phenol Red: Eight white rats were injected with phenol red intraperitoneally and immediately exposed to deep therapy. At the end of twenty minutes the untreated animals were a yellowish red or eosin red, while the irradiated animals were bluish red or purple. The treated animals excreted all the dye in two hours, while it required three and one-half hours for the untreated animals to excrete it. This accelerated excretion of the dye corresponds with observations on the same dye administered to dogs intravenously when 59 per cent. was excreted in two hours before roentgen-ray therapy, and 66 per cent. was excreted in two hours twenty-four hours after therapy.

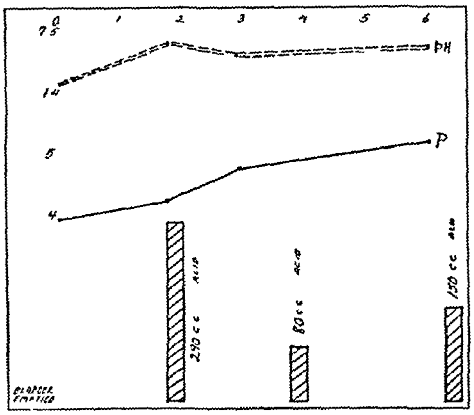

Chart 3.—Calcium lactate. A normal dog weighing 17 kg. was given four human erythema skin doses over the left abdomen. Before the administration of calcium lactate, the *p*H of the plasma was 7.42. After the administration of calcium lactate and irradiation with four human erythema skin doses, the *p*H of the plasma was 7.47 and after one hour and twenty minutes, 7.45. Inorganic phosphates of the serum before treatment were 3.93. After roentgen-ray therapy there is no dip in the inorganic phosphates but a gradual rise to 5.20 at the end of six hours. *Reaction of urine*: A catheterized specimen of urine is acid before the administration of calcium lactate and remains acid during a period of six hours' observation after the administration of calcium lactate and irradiation. Amount of urine excreted: After the administration of calcium lactate and irradiation, the amount of urine in the succeeding twenty-four hour period was increased over the twenty-four hour period previous to irradiation.

From this group of experiments we may conclude that the alkalosis observed in the plasma is secondary to the alkalosis in the irradiated tissues. It would seem that the reaction on the tissues is more marked than those observed in the plasma since changes of at least p_H 0.20 are required to affect litmus. They further confirm the findings that the early and persistent change after deep roentgen-ray therapy is an alkalosis.

2. *Investigation as to the Possible Respiratory Origin of This Alkalosis.*—Wels [22] has shown that nuclear and cellular division is dependent on oxygen but that the effect of irradiation does not center on oxidation. Swann [23] and others believe that oxidation is stimulated by small exposures and depressed by larger ones. The possibility of increased oxidation within the cell with resultant increased ventilation and washing out of carbon dioxid from the body is a possible source of the alkalosis observed. With this in mind, three patients were observed under precautions usually employed in the determination of basal metabolism. Their pulse, blood pressure, temperature and respiratory rate were determined, and, in addition, their expired air was collected for a period of ten minutes and the carbon dioxid and oxygen content determined. The same observations were made within a two hour period after deep roentgen-ray therapy for carcinoma. The results of these experiments are shown in Table 2. The production of expired air and the percentages of carbon dioxid, oxygen and basal metabolism are not materially

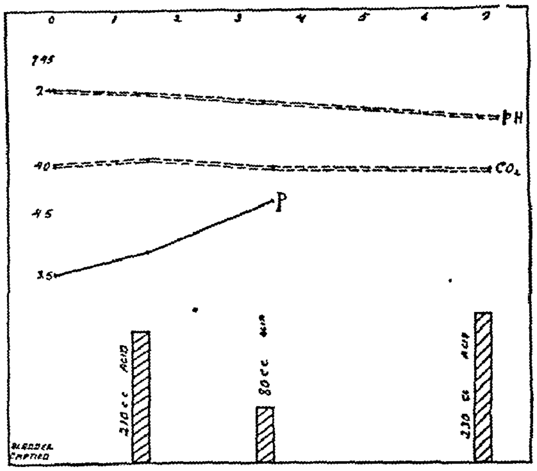

Chart 4.—Calcium chlorid. A normal dog with plasma p_H of 7.4 and weighing 16 kg. was given four human erythema skin doses over the left abdomen. Six hours after the administration of 40 c.c. of 2 per cent calcium chlorid solution intravenously and irradiation, the p_H was 7.36. The carbon dioxid content and carbon dioxid combining power of the blood showed no variation. The inorganic phosphorus curve in the same animal is low to start with, shows no dip immediately after treatment, and slowly recovers. Reaction of urine: A catheterized specimen of urine previous to the administration of calcium chlorid and irradiation was strongly acid to litmus and alizarin. *Urine, after calcium chlorid and irradiation*, is acid at the end of one and one-half hours and remains acid during the following five hours. Excretion of urine after the administration of calcium chlorid and irradiation shows marked increase during the period following irradiation, as compared to the twenty-four hour period previous to irradiation.

Table 2.—*Effect of Roentgen Ray on Oxidation*

	Carbon Dioxid Produced	Carbon Dioxid Absorbed	Ventilation per Minute C.c.	Cal. per Sq. M. per Hour	Basal Metabolic Rate
F. K. ..	Before, 394	556	3,824	38.2	+ 9
F. K. .	After, 427	637	3,385	38.7	+ 10
E. H.	Before, 351	479	3,950	35.3	+ 3
E. H.	After, 390	537	3,330	33.3	— 2
J. F.	Before, 395	529	4,350	39.0	+ 1
J. F.	After, 384	494	5,090	43.7	+ 13

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[22] Wels, Paul: Strahlentherapie **16**: 617, 1924.
[23] Swann, M. B. R.: Brit. J. Radiol. **29**: 195 (June) 1924.

changed, but the tendency is to decreased oxygen consumption with the lowering of basal metabolism rather than an increase. We may conclude, therefore, that the alkalosis is not the result of increased tissue oxidation.

3. *Investigation of Various Agents Used to Combat Acute Illness.*—In this investigation we first established a dosage, which, with our deep therapy equipment, would invariably produce an acute reaction in a dog manifested within one hour by salivation, nausea, vomiting, loss of appetite and malaise. In eighteen control dogs, fifteen treated over the abdomen and three over the chest, this dosage produced the symptoms suggested in every case. Using this established dosage the effects of hydrochloric acid, ammonium chlorid, sodium chlorid, calcium lactate, calcium chlorid and morphin were studied either alone or in combination.

EFFECTS OF HYDROCHLORIC ACID

Two hundred cubic centimeters of tenth normal hydrochloric acid was administered to dogs by stomach tube before, during and after irradiation. The animals became salivated and vomited repeatedly after the conclusion of the treatment. The urine, which was acid before treatment, contrary to the usual finding, remained acid during a four hour period of observation after treatment.

EFFECTS OF AMMONIUM CHLORID

Two dogs were given 12 gm. of ammonium chlorid daily for four days previous to irradiation. The carbon dioxid combining power of the plasma dropped as low as 29.5 per cent., and the p_H as low as 7.22. The treatment did not alter the acidosis thus produced, yet the animals were salivated, vomited repeatedly, and died in from four to six days.

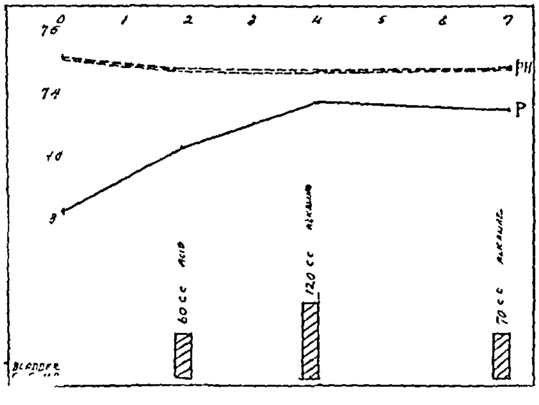

Chart 5.—Morphin: A normal dog weighing 14 kg. was given four human erythema skin doses over the left abdomen. The p_H of the blood previous to the administration of one-half grain (0.03 gm.) of morphin and irradiation was 7.46. Three hours after the administration of morphin and irradiation, the p_H was 7.43. There was a low inorganic phosphorus content of the blood to begin with, but no dip afterward. This gradually recovered. Urine, previous to the administration of morphin and irradiation, was strongly acid to litmus and alizarin. *Two and one-half hours after the administration of one-half grain (0.03 gm.) of morphin and irradiation the urine was acid, but four hours later it was found to be alkaline.* In the twenty-four hours previous to irradiation, the dog excreted 520 c.c. of urine. In the twenty-four hours after the administration of one-half grain (0.03 gm.) of morphin and irradiation, the dog excreted 1,620 c.c. of urine.

EFFECTS OF SODIUM CHLORID

Two hundred cubic centimeters of a 15 per cent. solution of sodium chlorid was administered by a stomach tube two days before treatment, also one-half hour before, and intravenously after treatment. Despite this, the dogs were salivated and vomited repeatedly. The urine excretion was increased after sodium chlorid and irradiation. The urine was acid before treatment but became alkaline after treatment, just as occurs in unprotected animals.

EFFECTS OF CALCIUM AND MORPHIN

Calcium lactate and calcium chlorid by mouth and intravenously were beneficial in alleviating the symptoms in both patients and dogs, but did not prevent or stop the illness in all cases. Morphin sulphate, in doses of from ½ to 1 grain (0.03 to 0.06 gm.) administered to dogs previous to irradiation, prevented all evidence of acute illness. With doses of from ⅙ to ½ grain (0.01 to 0.03 gm.) in patients the immediate effects of irradiation were prevented in most instances and alleviated in others (Tables 3 and 4). By studies on the p_H of plasma, the inorganic phosphates of blood, reaction of the urine, the amount of urine excreted and the amount of nonprotein nitrogen excreted when the animal was under the influence of calcium lactate, calcium chlorid and morphin, information as to the mechanism of the beneficial effects of these substances and indirect evidence as to etiology of the illness was sought (Charts 1, 2, 3, 4, 5 and 6).

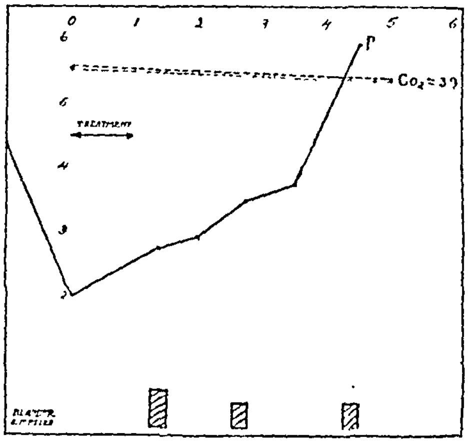

Chart 6.—Morphin protection: A normal dog weighing 21 kg. was given eight and one-half human erythema skin doses over the gastric area. The dog was previously given three-quarter grain (0.04 gm.) of morphin. Morphin entirely protected the animal against reaction for forty-eight hours, in spite of this extremely heavy dose. The inorganic phosphorus was strongly depressed by the morphin previous to the treatment. It recovered rapidly and increased over normal. The urine excretion during the hours right after treatment was not much diminished, but during the night an extensive polyuria took place. There was no disturbance in the carbon dioxid combining power. In the twenty-four hours before treatment there was an excretion of 624 c.c. In the twenty-four hours after treatment the excretion was 1,604 c.c.

Table 3.—*Patients Treated with Calcium Lactate*

Chest cases treated	4
Chest cases relieved	3
Abdominal cases treated	9
Abdominal cases relieved	6
Pelvic cases treated	10
Pelvic cases relieved	9

Table 4.—*Patients Treated with Morphin*

Morphin used prophylactically	9
Complete protection	3
Protection for two days	3
Not protected	3

It is noted in the foregoing experiments that under the influence of calcium lactate, calcium chlorid and morphin the irradiated animal shows only a slight change in the p_H of the blood and this is usually toward the acid side, as contrasted with a change toward the alkaline side with irradiation alone. The total amount of urine excreted and the nonprotein nitrogen excreted in the urine during the twenty-four hours following irradiation are increased under the influence of these agents despite the irradiation which alone markedly decreases the excretion of urine and slightly decreases the excretion of nonprotein nitrogen. Thus the beneficial substances used, especially morphin, not only counteract the clinical symptoms but also maintain at normal level the metabolic processes of the body despite the irradiation therapy.

Some of the animals receiving calcium lactate, calcium chlorid and morphin before and after the roentgen-ray therapy lived through the acute illness and survived for months, while the control animals invariably died in from four to six days. Even those which did survive had bloody diarrhèa and refused food for days. Necropsy on the animals that received these substances showed about the same distribution and severity of lesions in the intestine. These findings would indicate that the local reaction to irradiation is the same, but that cells outside this area are protected against the toxic products evolved within this area.

Although there has been no opportunity to make studies of actual cases, the pathologic changes found in the irradiated areas of these protected animals indicated that the substances mentioned can be used in tumor patients without fear of their making the tumor cells more resistant to the roentgen ray.

SUMMARY AND CONCLUSIONS

In the study of 150 patients, treated with a modern deep therapy apparatus, including a water cooled tube, a high percentage of acute irradiation sickness was found, especially in those cases treated over the chest, pelvis and abdomen. The treatment of this reaction, as described by various workers, differs markedly probably because theories as to the etiology of the illness are so varied. The rapidly developing alkalosis, and the continuation of this condition after large doses, are confirmed by the determination of the p_H of the plasma and of the urine and by the use of indicators in the tissues. That this alkalosis is not a result of tissue oxidation or washing out of carbon dioxid is demonstrated in the study of the expired air of patients collected before irradiation and within a two hour period after irradiation. After the establishment of roentgen-ray dosage which invariably produces the acute illness in dogs, various agents for counteracting it were tested. Of these agents, hydrochloric acid, ammonium chlorid and sodium chlorid had but little effect. Ammonium chlorid and hydrochloric acid may combat completely the resultant alkalosis, but the experimentally produced irradiation sickness in dogs was not relieved by these drugs, demonstrating the fact that alkalosis is not the only factor concerned in irradiation sickness. Calcium chlorid, calcium lactate and morphin were beneficial in preventing or alleviating the symptoms. Morphin invariably prevented the reaction in dogs and was helpful in patients treated over the abdomen, in whom the treatment was invariably followed by irradiation sickness when unprotected.

ABSTRACT OF DISCUSSION

Dr. Henry Schmitz, Chicago: How large a dose of calcium chlorid or calcium lactate was used in these cases, and how large was the dose of morphin?

Dr. George E. Pfahler, Philadelphia: Since Dr. Doub published his recent paper, I have used calcium lactate in a great many cases, and I get the impression that it is helpful. We must make use of the morphin most cautiously or we shall get into other troubles, especially if we attempt to continue treatment over a considerable period of time, and we might even get involved with the Harrison act.

Dr. Howard P. Doub, Detroit: Relative to the dosage of calcium lactate and morphin, as I pointed out, we usually use one half grain (0.03 gm.) of morphin about one half to three quarters of an hour before the treatment. We used this only in cases in which we believed that very distressing sickness would result, that is, cases of carcinoma of the stomach, carcinoma of the gallbladder, etc., when we were treating over the gastric area. I certainly would not advocate using this medication in breast and neck cases, because I believe that where there is a chance of obtaining a cure of the cancer we should avoid producing the morphin habit. Of course, these patients never knew what they were getting, so far as we could keep them from knowing. In regard to calcium lactate, we used a 5 per cent. solution. In many cases, we injected intravenously from 20 to 30 c.c. immediately following their radiation. Later we used a considerable amount by mouth. In those cases we gave about 4 drams every half hour, for from four to six doses, and these series were frequently repeated. We would let them go an hour, and if they had any recurrence of the nausea this dosage was repeated. I do not believe that this substance has a deleterious effect on the patient.

NONSPECIFIC GRANULOMA OF THE INTESTINE CAUSING INTESTINAL OBSTRUCTION

T. HOMER COFFEN, M.D.
PORTLAND, ORE.

In 1909, Heinrich Braun[1] referred to a report by him, eight years earlier, of an inflammatory tumor of the mesentery, causing obstruction, and he reported "similar tumors of the intestines, whose recognition is important as to course and prognosis and especially because of their similarity to new growths." Up to that time there had been no record of these tumors in German medical textbooks or journals, but in reviewing the literature Braun found that Moynihan had seen the condition six times in three years and Mayo Robson had seen it five times in twelve years, never involving the small intestine. He thought that these tumors were sometimes unrecognized or mistaken for carcinoma, because microscopic examination had not been made, and he pointed out that they have nothing to do with the very circumscribed inflammatory tumors of tuberculosis or actinomycosis. They are sometimes diffuse inflammatory tumors in the vicinity of the sigmoid, usually associated with diverticula, or inflammatory pseudotumors of the mesentery, causing stenosis of the transverse colon. "Inflammatory tumors of other parts of the body are easily recognized as such," he wrote, "but in the abdominal cavity the differentiation from carcinoma (especially in elderly patients with cachexia, intestinal disturbance or signs of obstruction), from stones in the common or cystic bile ducts, or from masses in the female pelvis may be possible only by exploratory laparotomy." The reports from the literature by Braun are as follows:

Moynihan[2] reported intestinal obstruction in a man, aged 62, due to a mass the size of a coconut which was thought to be cancer. The tumor was not removed, but anastamosis was done, followed by recovery and no recurrence.

Robert Proust[3] saw a woman, aged 32, four months after ovariectomy, with lancinating pain in the left quadrant of the abdomen; a nut sized mass was felt. Operation revealed localized peritonitis, but the mass was not removed. When seen six months later, the tumor could be grasped in two hands, and operation showed an inflammatory tumor of the omentum, causing stenosis of the intestine. After removal, it was difficult to determine microscopically whether it was tuberculous or neoplastic, but a thorn was found embedded in inflammatory tissue and there were microscopic evidences of inflammation.

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[1] [illegible] her Enzündlichesgeschwülste am Darm, Deutsc [illegible] : 1-12, 1909.

[2] [illegible] he Mimicry of Malignant Disease in the Large [illegible], 1907, p. 228.

[3] [illegible] paraintestinale, Rapport par M. Lejours, Bull. [illegible] Paris 33: 1158, 1907.

Robson,[4] in 1906, saw an old man with a hard intra-abdominal tumor near the navel, suspected to be carcinoma. Operation revealed a tumor of the transverse colon, involving the omentum and small intestine; it was not removable. Anastomosis gave relief; he improved rapidly, and the tumor disappeared. Twelve years earlier, Robson had operated on a man, aged 70, for intestinal obstruction caused by a tumor of the ascending colon; anastomosis gave relief, and he was well when seen three years later. A third case was that of a patient seen two years before with an obstruction due to a large tumor in the region of the splenic flexure, resembling carcinoma. Anastomosis relieved it, and the patient was well when seen one year later.

Lejars[5] reported the case of a woman, aged 26, with pain in the gallbladder region and jaundice. Operation showed a mandarin sized tumor in the gallbladder region, involving the angle of the colon and mesentery; while it appeared to be malignant, microscopic examination showed it to be inflammatory.

Braun[1] reported two cases; one a woman, aged 54, with a mass in the lower part of the abdomen suggesting an ovarian tumor but found to be inflammatory. The other was a man, aged 60, with an obstruction tumor in the region of the cecum. Both tumors disappeared spontaneously after operation. In the discussion of Braun's paper, Jaffe reported two cases, both in the colon, mistaken for carcinoma; Reichel reported a similar case in the sigmoid; Franke said the condition should be differentiated from hyperplastic colitis, sigmoiditis and diverticulitis. Braun described the microscopic appearance of these tumors, and his paper is accompanied by colored plates of the microscopic sections. They agree with the description of Moschcowitz and Wilensky, which follow. The etiology of these inflammatory tumors was not determined by Braun.

In a paper by Moschcowitz and Wilensky[6] four cases were reported; summarized briefly, they are as follows: A man, aged 23, had diarrhea of one year's duration but was operated on for acute appendicitis. Six months later, a mass appeared in the right iliac fossa, which was a granuloma. He was well for two years, when he had acute obstruction with a granulomatous mass. Microscopically, there were numerous giant cells surrounding foreign bodies of unknown nature. A year later he had suppurative peritonitis, the origin of which was not determined at operation. When seen some months later he was well except for mild diarrhea. The second patient, a man, aged 33, had been operated on two years before for inguinal hernia, and the appendix was removed. He presented symptoms of appendicitis, but a large mass was found in the descending colon which, microscopically, was simple chronic granuloma. The third patient, a man, aged 44, had been operated on for acute suppurative appendicitis. Two years later a mass was found in the left kidney region, which, at operation, proved to be granulomatous obstruction of the splenic flexure, mainly in the mesentery, but involving the wall of the intestine and apparently not breaking into the mucosa. Microscopically, there was no evidence of tuberculosis, syphilis or lymphogranuloma. The fourth patient, a woman, aged 44, was seized with cramplike pain in the right abdomen. Three weeks later a large mass was found in the right iliac fossa. Resection, with a part of the ascending colon, showed simple granulomatous tissue.

The pathology of the cases of Moschcowitz and Wilensky was as follows:

Gross.—One specimen was a firm, dense, uncircumscribed tumor involving all coats of the large intestine and causing stricture of the lumen. There was some superficial ulceration, not beneath the mucosa. In three cases the ascending colon was involved; in a fourth, the splenic flexure. Another specimen involved the mucosa, submucosa, muscularis and serous layers of the small intestines, causing almost complete obliteration.

Microscopic.—There was uniform, extensive infiltration of all coats with cells of plasma or round cell type and fibroblastic transformation from comparatively richly cellular tissue to firm, dense fibrous scar. The number of polymorphonuclears varied. In one instance they were congregated sufficiently to justify the term abscess. New blood vessel formation was prominent in all specimens. Giant cells were absent in the first case. The mesenteric glands were not noteworthy.

The case here reported is presented because: 1. It is similar to those referred to above in the gross appearance, which suggested a tumor mass resembling tuberculosis or new growth, causing intestinal obstruction. 2. The patient has been under observation for nine years, in which time there have been three operations for granulomatous tumors, causing intestinal obstruction. He was fairly well in the intervals. 3. The first granulomatous obstruction followed an operation for appendicitis, subacute. Subsequent granulomas were associated with systemic evidences of focal infection (sciatica, arthritis, low grade fever, etc.). 4. The last operation showed coincidental suppurative cholecystitis, and the excised tissues and gallbladder gave a pure culture of streptococci. 5. The condition is rarely referred to in current medical literature.

REPORT OF CASE

A man, aged 20, with no former serious illness, had had more or less pain in the epigastrium, headache and moderate cough for a long time, and he was troubled with constipation for a year before I saw him in 1916. He was relieved of all these symptoms for four months, when he complained of pain in the left shoulder, constipation and rectal fissure. These symptoms responded to treatment, but one month later, after eating green corn, symptoms of appendicitis appeared that required operation, showing subacute inflammation. Exploration of the abdomen showed no further abnormalities. He was then well for about a month, when he had an attack of cramplike pain in the left upper abdominal quadrant, nausea and vomiting. These subsided in a few days, and he was well for about three weeks, when he had sharp abdominal pain and there were definite signs of obstruction, demanding operation. Eight inches of indurated thickened bowel was resected, thought at the time of operation to be tuberculous, but found to be granulomatous, as described above. Five months later he had acute obstruction, demanding operation, when 24 inches of ileum was resected by another surgeon during my absence in Europe. This was thought to be tuberculous but proved to be granuloma. The pathologist, at that time, not aware of the earlier history and the pathologic condition of the tissues removed at the former operation, thought it phlegmonous enteritis, due to chronic streptococcic infection as described by MacCallum.[7] His description was as follows: Microscopically, the specimens showed dense inflammatory tissue, with infiltration of the submucosa and mucosa. There was no ulceration and no evidence of tuberculosis or syphilis. The infiltration consisted of polymorphonuclear leukocytes, lymphocytes and many eosinophils. The gallbladder was septic at this time, streptococci being found in pure culture, also in the intestinal contents. Eight months later, another resection was done for the same condition, the patient having been comfortable up to a week before. It is nine months since the last operation for obstruction, and the patient is in fair health.

Journal Building.

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[4] Robson, A. W. M.: Abdominal Tumors Simulating Malignant Disease and Their Treatment, Brit. M. J. **1**: 425 (Feb. 22) 1908.

[5] Lejars: Des tumeurs inflammatoires paraintestinal, Bull. et. mém. Soc. Chir. de Paris **34**: 9, 1908.

[6] Moschcowitz, E., and Wilensky, A. O.: Am. J. M. Sc. **166**: 48 (July) 1923.

[7] MacCallum, W. G.: Text Book of Pathology, Philadelphia, W. B. Saunders Company, 1916, p. 489.

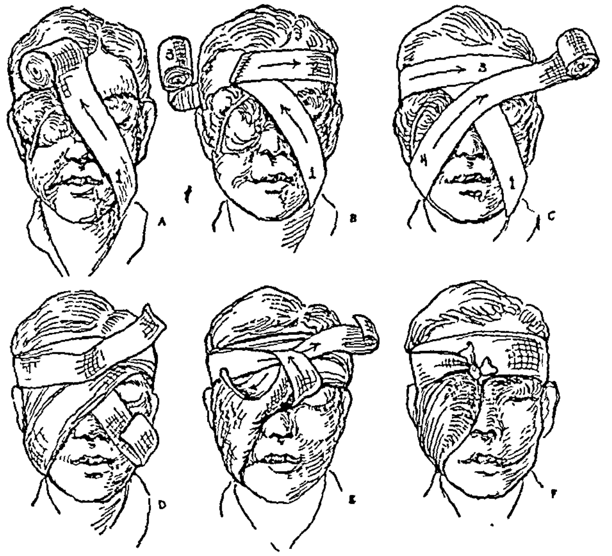
Clinical Notes, Suggestions and New Instruments

A USEFUL EYE BANDAGE

A. B. Reese, M.D., New York

An eye bandage, which I have used for some time and which possesses certain distinct advantages, may be described as follows:

The proximal end of the bandage for about 6 inches is placed obliquely over the eye that is not to be bandaged *(A)*; on the forehead over the eye to be bandaged, it is reversed *(B)*, and a turn or so is taken around the forehead in a direction away from the bandaged eye. Then it is brought up under the ear and over the eye to be bandaged, the first turn being made close to the nose *(C)*. The bandage is then completed by making alternate turns around the forehead and over the bandaged eye *(D)*. The last turn must be around the forehead *(D)* and the distal end is then tied to the proximal end *(E)* which frees the unbandaged eye *(F)*.



Eye bandage.

The advantages of the bandage are:

1. No adhesive plaster is necessary.
2. Pressure on the eye can be made to almost any degree, by varying the tightness with which the ends are tied.
3. The tying of the ends pulls the bandage in snugly and tightly along the nose *(F)* and makes it conform in a convex manner over the eye.

50 West Fifty-Second Street

PARATYPHOID BACILLUS B IN CANNED RIPE OLIVES *

William Royal Stokes, M.D., Baltimore

The following note is to record an observation that indicated the presence of an aerobic organism capable of producing food poisoning in canned ripe olives. Koser,[1] in a study of canned ripe olives, found viable organisms in eight of 181 samples of normal cans, and in 154 of 157 of swelled or springy cans. In 116 glass containers, eleven, or 9.5 per cent., showed the presence of living organisms, and all the twenty-six specimens that were obviously spoiled or had a bad odor contained living organisms. In studying the various species found, he observed members of the colon group, *Proteus vulgaris*, gram-positive staphylococcus and several aerobic spore-bearing organisms. He also found *Clostridium botulinum* in seven of the spoiled glass jars.

The observations reported here were made on a glass jar of ripe olives that was opened when received and from which olives had been eaten by a man and a woman who were patients of Dr. C. W. Judd. About twenty-four hours after eating the olives, they both were seized with fever, vomiting and diarrhea, but no special symptoms of botulism were observed. The olives had been in a refrigerator for several days after the attack, before they were brought to the laboratory.

A careful investigation failed to reveal the toxin or organism of botulism. In the experiments, one guinea-pig was inoculated subcutaneously in the abdominal wall with 1 c.c. of the unfiltered juice of the olives. This animal was dead twenty-four hours later, and there was a hemorrhagic area at the site of inoculation and enlargement of the spleen. The cultures from the site of inoculation and the spleen gave a large number of organisms corresponding to the paratyphoid B bacillus, and this organism was agglutinated by a dilution of 1:800 of the paratyphoid B agglutinative serum, the titer of which with the stock organism is 1:1,600.

The patients had recovered by this time, and examination of the stool failed to reveal any paratyphoid organisms. The colon bacillus and *Proteus vulgaris* were isolated also from the juice and tissue of the ripe olives.

CONCLUSIONS

It seems not improbable that an acute intestinal infection was caused by a paratayphoid organism in ripe olives. Experiments failed to demonstrate *Clostridium botulinum*, but revealed in the olives an aerobic organism recognized as paratyphoid bacillus B, which is capable of causing intestinal infection in human beings.

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* From Bureau of Bacteriology, Health Department.

[1] Koser: J. Agric. Res. 20:375 (Dec. 1) 1920.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

VACCINE VIRUS (See New and Nonofficial Remedies, 1925, p. 341).

Eli Lilly & Co., Indianapolis.

Vaccine Virus.—Marketed in packages of one capillary tube containing sufficient material for one vaccination accompanied by a bulb and needle, and in packages of five capillary tubes each containing sufficient material for one vaccination accompanied by a bulb and needles.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1925, p. 360).

The Gilliland Laboratories, Inc., Marietta, Pa.

Typhoid-Paratyphoid Bacterial Vaccine Immunizing (See New and Nonofficial Remedies, 1925, p. 361).—Also marketed in hospital size packages of ten complete immunizations. Each immunizing treatment consists of three 1 Cc. vials, the first dose containing 500 million killed typhoid bacilli, 250 million killed paratyphoid A bacilli and 250 million killed paratyphoid B bacilli and the second and third each containing 1,000 million killed typhoid bacilli, 500 million killed paratyphoid A bacilli and 500 million killed paratyphoid B bacilli.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1925, p. 342).

E. R. Squibb & Sons, New York.

Rabies Vaccine (Semple Method)-Squibb.—An antirabic vaccine prepared according to the general method of David Semple (phenol killed). The brains of rabbits killed on the sixth day after inoculation with fixed virus rabies, are ground in a ball mill with physiological solution of sodium chloride containing 1 per cent. of phenol to yield a 10 per cent. suspension of brain substance. The mixture is incubated at 37 C. for twenty-four hours and then diluted with an equal volume of physiological solution of sodium chloride so that the finished product contains 5 per cent. of brain substance. Marketed in packages of fourteen syringes, each containing 2 Cc. The content of a syringe is administered daily over a period of fourteen days.

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SATURDAY, OCTOBER 24, 1925

BATHS AND DIURESIS

Balneotherapy has as yet scarcely reached a stage of development at which the term "scientific" can properly be applied to it. Casual observation extending over generations has furnished guides for practical procedure and may presently transform the consideration of bathing from empiricism to a real science. Meanwhile, one must be content with such unsatisfactory platitudes as the "general healthfulness" of bathing and the assurances of the benefits or the reverse that the bath in one form or another may have conferred on a host of patients. The subject is obviously not a simple one. Temperature and pressure changes are applied to the body in the bath. The circulation and respiration have long been known to respond in varied ways to such alterations in the environment. The indirect consequences may be of considerable therapeutic as well as hygienic value. We need merely recall the remarkable nervous relaxation often induced by neutral baths, so that they become effective in the management of acute mania as well as in cases of ordinary sleeplessness. Cold baths are widely employed in the treatment of fevers.

Several years ago, Bazett and Haldane[1] observed a considerable diuresis to occur in baths of varied sorts. The effect was evidently not dependent on temperature. That cold, including cold baths, might produce a diuresis has long been known; but the results were equally striking when the possible temperature decrease was excluded. There is no evidence of any water absorption through the skin. Whereas the circulatory and respiratory changes observed on immersion in hot or warm baths appear to depend mainly on changes in body and skin temperature, no such dependence can be demonstrated for the diuresis. The increased secretion of urine is induced by immersion of the trunk in water without the limbs being immersed, but is not caused by immersion of the lower half of the body up to the level of the umbilicus.

It has been suspected that the pressure of the water on the abdomen raises venous pressure, causing secretion of urine and absorption of fluid. This hypothesis is supported by experiments of Griffith and Hansell[2] at the University of Pennsylvania, which indicate definitely that abdominal pressure without the accompaniment of the bath can produce a diuresis, and that for any subject there is probably an optimal value, so that pressure above this may cause no increase or actually a decrease in urine volume. The effective pressures employed by the Philadelphia physiologists were about comparable to the hydrostatic pressure on the abdomen in the baths. It seems inevitable that the venous pressure in the abdomen would be raised as the result of the external pressure. Slight increase in the pressure in the renal vein is known to produce diuresis in experimental animals. Consequently, the cause of the diuresis in the bath is presumably to be sought in a similar phenomenon.

PROTEIN HYPERSENSITIVENESS

In the earlier years of the development of our knowledge, anaphylaxis, as Duke[3] has pointed out, was looked on by the medical profession at large as an interesting laboratory phenomenon, responsible at most for an occasional human death following the use of therapeutic serums. As a result of two decades of intensive study by a large number of investigators, facts have been disclosed that show a condition, in human beings, very similar to anaphylaxis, as a common cause of illness. According to Duke, it affects, in slight or marked degree, possibly as many as 15 per cent. of persons.

Among the agents that may become responsible for hypersensitiveness and its manifestations, foods are included. It is far easier to understand how alien substances may bring about the untoward reactions. Ordinary foods, such as the conventional dietary proteins, do not seem so "foreign" to the organism. It should be remembered, however, that even the familiar proteins of the daily regimen induce toxic reactions when they are introduced directly into the blood stream and thus distributed unchanged to the tissues. Alimentary introduction of the same products differs in that it provides a preliminary digestion of them. They then enter the circulation as amino-acids or other nonantigenic products.

Hypersensitiveness to food proteins has therefore raised the question as to whether proteins are always absorbed solely as nonprotein digestion products. Or does an unchanged protein molecule occasionally traverse the alimentary barrier and thus either sensitize or intoxicate the individual concerned? Various investigators have attempted to learn whether readily soluble proteins, such as egg albumin, can be absorbed unchanged. The latest[4] observers have used specially sensitized animals as test objects. No signs of anaphylactic shock could be discovered on the direct intestinal injection of the sensitizing protein; but symptoms were elicited when the latter was introduced under conditions of stasis leading to pressure or when the mucosa was damaged. Consequently, the conclusion is reached that, under unusual conditions of increased intra-intestinal pressure, proteins may reach the blood stream to some extent in undigested form; at any rate, in quantities large enough and at rates rapid enough to sensitize a normal animal or for the intoxication of one previously sensitized. Like most defensive mechanisms of the body, the alimentary tract with its protective membranes and potent digestive secretions may fail at times under the stress of some unusual condition.

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[1] Bazett, H. C., and Haldane, J. B. S.: J. Physiol. **55**: iv, 1921. Bazett, H. C.; Thurlow, S.; Crowell, C., and Stewart, W.: Studies on the Effects of Baths on Man, II, The Diuresis Caused by Warm Baths, Together with Some Observations on Urinary Tides, Am. J. Physiol. **70**: 430 (Oct.) 1924.

[2] Griffith, J. Q., and Hansell, H. R.: Studies on the Effect of Abdominal Pressure on Urine Volume, Am. J. Physiol. **74**: 16 (Sept.) 1925.

[3] Duke, W. W.: Allergy, St. Louis, C. V. Mosby Company, 1925.

COUNCIL ON PHYSICAL THERAPY

The report of the organization and first meeting of the new Council on Physical Therapy of the American Medical Association, which appears elsewhere in this issue, places on record one of the most significant steps taken by the Association in its attempts to advance modern therapy. For many years, pioneers have been working empirically with various electrical and mechanical devices; indeed, some have recognized the suggestive power of such methods and in many instances exploited them unduly to credulous physicians and to the more credulous public. It has become apparent that physical methods have a definite field both in the diagnosis and in the treatment of disease, and that it was incumbent upon some unbiased and scientific body to define the exact merits of these devices. This sentiment was crystallized in the resolution introduced into the House of Delegates at the last annual session of the Association, in Atlantic City, by Dr. Joseph F. Smith of Wisconsin. That resolution reads:

> WHEREAS, From time to time there are offered for sale to members of the medical profession and to hospitals many nonmedicinal agents of alleged therapeutic value consisting of electrical devices, mechanical contrivances, colored lights, various kinds of lamps, etc., the exact nature and action of which the individual members of the profession at large, because of the lack of the necessary technical skill, adequate facilities and instruments of precision, are not in a position to evaluate correctly, and
>
> WHEREAS, The purchase of such pieces of apparatus, often on the misrepresentation of persons offering them for sale, results in great financial loss to the members of the profession annually, and
>
> WHEREAS, The use of such devices and apparatus without adequate understanding and control on the part of the physicians employing them tends to deteriorate the physicians' alertness in making a diagnosis, thereby resulting in loss of time and money to patients; therefore, be it
>
> *Resolved*, That the trustees of the American Medical Association be empowered to appoint a Council on Nonmedicinal Agents similar to the Council on Pharmacy and Chemistry consisting of at least two physicists, two physiologists, two pathologists and two clinicians whose duty it shall be scientifically to investigate and report on the value and merits of all nonmedicinal apparatus and contrivances offered for sale to physicians and hospitals and to publish in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION from time to time the results of its investigations.

In due course the resolution was approved by the Reference Committee and by the House of Delegates and referred to the Board of Trustees, with a request for action. At its last meeting, the Board of Trustees nominated the members whose names appear under the heading of Association News.

The Council, as will be observed, includes representatives of fundamental sciences closely allied to medicine, whose services are necessary in order to evaluate properly the worthiness of physical apparatus. The physicists, the physiologists and the pathologists will cooperate with representative clinicians who have made basic investigations in the field of physical therapy to determine whether or not heat produced by electricity, by external application or by light, or, indeed, by the use of drug irritants, is a desirable procedure in any given instance. They will endeavor to assign proportionate merit to each of these methods under various circumstances. Manufacturers of apparatus have been urged to submit to the Council's opinion the thousands of devices now available, and to submit also the advertising material, with a view to offering to physicians only such apparatus as may be sold with due regard for established fact. The whole-hearted cooperation with which many of the larger manufacturers have entered into the scheme is in itself a tribute to the high position earned by the Council on Pharmacy and Chemistry of the American Medical Association, established more than twenty years ago. It is also a recognition of the value attaching to acceptance of advertising claims by that council, by THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and by the journals of the various state medical associations which have adopted the approval of the Council on Pharmacy and Chemistry as their standard.

The initial discussions of the new council indicate a desire to be of the widest possible service to scientific medicine. The plans include not only investigation and approval of physical apparatus, but inquiry into such methods as massage and manipulation, hydrotherapy and exercise. If the views now held are carried to fruition, physicians will have available shortly, through the work of this council, a statement of the present status of each of the physical therapeutic methods now known, including its history, its underlying physiology, its actions and its uses. Fellows of the American Medical Association will, it is hoped, appreciate the manner in which members of this council have taken hold of the tremendous problem, and at the same time recognize the fact that their work is given to the organization without idea of any compensation other than the regard of fellow scientists.

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[4] Hettwer, J. P., and Kriz, R. A.: Absorption of Undigested Protein from the Alimentary Tract as Determined by the Direct Anaphylactic Test, Am. J. Physiol. 73:539 (Aug.) 1925.

THE GLUCOSE CONTENT OF NORMAL URINE

It is a well attested fact that the sugar characteristically present in the urine in diabetes is the carbohydrate glucose. The chemical nature of the latter has been established by dependable methods of investigation. It has also been known for some time that the urine of presumably healthy persons gives certain reactions that suggest the presence of carbohydrates closely allied to, if not identical with, the familiar sugars. Thus, under suitably arranged conditions and with sufficiently sensitive reagents, so-called "reduction tests" can be conducted with positive outcome on normal urines. The evidence that some carbohydrate material, however small in amount it may be, regularly escapes into the urine need not be reviewed here. There are indications that it consists of a mixture of substances; and the possible significance of this normal carbohydrate "leakage" through the kidneys has excited considerable discussion.

The impression is widespread that part, at least, of the "normal" urinary carbohydrate consists of glucose, the quantity being so small, however, as to escape detection by any except the most delicate tests. If this is correct, as has repeatedly been maintained by biochemists of repute, the difference between the diabetic and the healthy person with respect to sugar output through the kidneys is essentially one of quantity or proportions. Diabetic glycosuria or even alimentary glycosuria may then be looked on as an exaggerated "glycuresis."

The detection of small amounts of glucose among other carbohydrates, and particularly reducing sugars, is not easy. Renewed investigation of the normal urine sugar problem has brought forth challenges of the presence of glucose. Among the critics, Greenwald, Gross and Samet[1] allege that the sugars excreted in normal urine are made up of nonassimilable carbohydrates or carbohydrates assimilable with difficulty, and of reducing substances derived from the protein of the food and from endogenous sources. The nature of those in the former group depends on the diet. This group may include lactose from milk, pentoses from fruits, and caramelized sugars and dextrins. The amounts of all these are usually small. On ordinary diets, at least half of the sugars of the urine originate from the protein of the food or from endogenous sources. Apparently, they do not arise from nuclein metabolism. It is suggested that they may be pentoses, which, it is argued, are always formed from protein and, in pentosuria, are either formed in larger quantities or escape further catabolism.

It is admitted that glucose may appear in the urine of normal persons after the ingestion of quite large quantities of glucose or after the ingestion of a carbohydrate meal immediately following a period of carbohydrate-free diet. Just as with any other function, there are probably all gradations in the ability of individuals to assimilate glucose. There are those who are unquestionably normal and those who are frankly diabetic, just as there are those who have unquestionably normal hearing and those who are totally deaf. Just what shall be called "normal" is a matter of statistics and of definition. Not nearly enough of the variations in the ability to assimilate glucose is as yet known. Höst[2] also is convinced that the sugar in normal urines is not identical with the blood sugar, glucose. The latest investigators,[3] at Addenbrooke's Hospital in Cambridge, England, proceeded from the thesis that if glucose, a fermentable sugar, is present in urine, the products of its fermentation should be detectable when this reaction is attempted. The most delicate tests available failed to demonstrate production of carbon dioxid when normal urine was treated with yeast. This points clearly to the absence of glucose from normal urine.

Current Comment

FEBRILE PLEIOCHROMIC ANEMIA

The description of heretofore unrecognized disease entities is no longer so frequent that a novelty fails to arouse interest. On more than one occasion, precise formulation of observations on anatomic or functional irregularity has served to awaken enthusiasm and brought to light unsuspected additional illustrations of the malady involved. All too few practitioners are thoroughly prepared by training or temperament to "sense" the unusual. We use this expression advisedly; for the highest diagnostic skill requires the contributory help of all the physician's senses. This is illustrated in the illuminating study of an undescribed disease reported by Moschcowitz[4] of New York. In its pathology it was characterized by widespread hyaline thrombi in the terminal arterioles and capillaries. The pathogenesis of this peculiar type of thrombosis, so far as the appearance of the thrombi is concerned, was discovered long ago by Flexner in masses of agglutinated red blood cells. He concluded that when red cell thrombi are old or when agglutination is compact, the plugs have the appearance of hyaline thrombi. In the disease leading to this unusual pathologic morphology,

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[1] Greenwald, I.; Gross, J., and Samet, J.: The Nature of the Sugar in Normal Urine, II, The Sugar Excretion on Various Diets and the Influence of Diet on Glucose Tolerance, with Some Remarks on the Nature of the Action of Insulin, J. Biol. Chem. **62**: 401 (Dec.) 1924.

[2] Höst, H. F.: J. Metabol. Res. **4**: 315, 1923.

[3] Lund, G. S., and Wolf, C. G. L.: The Glucose Content of Normal Urine, Biochem. J. **19**: 538, 1925.

[4] Moschcowitz, Eli: An Acute Febrile Pleiochromic Anemia with Hyaline Thrombosis of the Terminal Arterioles and Capillaries, Arch. Int. Med. **36**: 89 (July) 1925.

Moschcowitz believes that death resulted from some potent poison having both agglutinative and hemolytic properties. There are indirect indications that transfusion of blood may be a palliative measure. In former days the reviewer would presumably have referred to the new entity as Moschcowitz's disease rather than attempt the discoverer's more cyclopedic designation of "acute febrile pleiochromic anemia with hyaline thrombosis of the terminal arterioles and capillaries."

THE E. R. A. HAZARD

Some minds are impregnable to scientific evidence. Among their unfortunate possessors are those who believe that the "Electronic Reactions of Abrams" have some basis in fact. To argue with such persons is hopeless. All attempts on the part of the medical profession to enlighten them are rendered abortive by the preconceived belief that scientific medicine is hidebound and will not see the light. Minds of this kind, however, are more open to the practical facts of business. They will sit up and take notice when a business man tells them that his experience is thus and so. To these individuals we would commend a circular recently sent out by an insurance company that specializes in insuring professional men and women against professional loss. The special feature of this insurance company is protection of those who practice the healing art against malpractice suits. The company has two premium rates, one covering physicians and one covering those who employ the Abrams fakery. They are known respectively as "General Premium Rates" and "E. R. A. Premium Rates." The premium charge for a physician indemnifying him for $5,000 a year is $12.50. The premium charge for the Abrams disciple, indemnifying him for the same amount, is $50!

THE INDEX OF INSULIN ACTION

The four years that have elapsed since the use of insulin in clinical medicine was instituted have not sufficed to supply any adequate explanation of how the pancreatic hormone enables the body to utilize glucose. Efforts to secure an answer to the important problem at hand have assuredly not been lacking. One by one a number of possibilities that present themselves have been tested, for the most part succeeding only in narrowing somewhat the remaining fields of inquiry. The blood itself is evidently not the seat of the predominant reaction. Various organs have been tested for their possible complicity in the function of carbohydrate utilization through the influence of insulin. Some of them have been extirpated without any disappearance of sugar metabolism. Others have been studied in isolation by the method of perfusion, without showing any unexpected results. One of the latest investigations, by Mason and Matthew[1] of the University of Michigan, has served to demonstrate that insulin acts independently of the central nervous system, the sympathetic nervous system, and the parasympathetic system. At any rate, in experimental animals administration of the hormone still produces characteristic decrease in the content of blood sugar after destruction of the central nervous system, administration of atropin in doses that paralyze the parasympathetic endings, or the use of drugs that interfere with the function of the sympathetic ganglions. A heretofore unemphasized feature has been recorded by Foshay[2] of the Lakeside Hospital, Cleveland, who observed that insulin may cause a reduction in the quantity of glucose in the erythrocytes disproportionate to the decrease in the whole blood. According to him, overdosage, the source of danger in insulin therapy, may lead to cytoglycopenia—a status of glucose impoverishment within the red blood cell. Hence it may happen that untoward symptoms arise before their cause is betrayed by an examination of the whole blood alone. If the exhaustion of erythrocytes with respect to sugar is indicative of what happens to the tissue cells in general, a step toward a better understanding of the exhaustion seen after insulin overdosage will have been taken.

ARE CALORIES OLD FASHIONED?

In his presidential address delivered before the American Neurological Association in Washington last May, Peterson[3] recalled the saying of Hippocrates that there are ills, no less dreadful than those of repletion, arising from deficiency of diet. Twentieth century medicine has had its attention attracted to such deficiency disorders in striking ways. It is being admonished that, "in a land literally flowing with milk and honey, several million children in the public schools suffer from malnutrition." Peterson advanced the thesis that neurasthenia, a common ailment having a professionally unpopular designation, has failed to receive the critical consideration which its widespread occurrence dictates, and that it deserves to be studied from the standpoint of nutrition and fatigue. As if to point a promising direction for the desired research, the neurologist remarks: "We are just beginning to realize that the calories have gone out and the vitamins have come in." One who has read these columns of The Journal in recent years must admit that the newly recognized food factors have found consideration and that the promise which they hold for the advancement of practical therapy has not been overlooked. Mendel[4] has well remarked, however, that we are living in a period of hectic anticipation of novelties, when much is expected of science; and the momentary enthusiasm for the new is apt to bring about indifference to the old. The fact is that the appreciation of the calory idea in nutrition has not gone out but, on the contrary, has become a permanent part of everyday science. Lest we forget, it may be worth while to recall what an adequate appreciation of the energy factor means for present-day medicine. Basal metabolism and its variations in disease are measured in terms of calories. The formerly unappreciated large food fuel needs of the growing child are dealt with in the same terms. As Mendel has expressed it, the better appreciation of the nutritive needs of those destined to become the rank and file of our nation when they are grown up—an appreciation based alike on experimental studies and on statistical data as to food habits—is not the least of the contributions which the science of nutrition has made to public welfare during the last decade. The food dictators of the future will no longer be excused if they estimate the food needs of peoples in the once conventional terms of "man values" wherein the requirements of the child population were calculated as a fraction of the adult needs proportional to the smaller weight and stature of the young. The high-calory diets in fevers have revolutionized the management of the typhoid patient in determinable ways. The reduction of obesity has become an experiment in rational low-calory feeding.

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[1] Mason, E. C., and Matthew, C. W.: A Study of Insulin Action, J. Lab. & Clin. Med. 10:793 (July) 1925.

[2] Foshay, L.: Observations on the Action of Insulin on the Blood with Special Reference to the Cause of the Condition Known as Hypoglycemia, Am. J. Physiol. **73**:470 (July) 1925.

[3] Peterson, Frederick: Nutrition and Nerves, Arch. Neurol. & Psychiat. **14**:435 (Oct.) 1925.

[4] Mendel, L. B.: Nutrition: The Chemistry of Life, New Haven, Yale University Press, 1923.

Association News

COUNCIL ON PHYSICAL THERAPY

Report of Organization Meeting

The Council on Physical Therapy held its first meeting, for organization purposes, at the headquarters of the American Medical Association on Friday, October 16. The Council is composed of two physicists, four clinicians, two physiologists and two pathologists.

There were in attendance at the meeting: Dr. W. T. Bovie, assistant professor of biophysics, Harvard University, Boston; Dr. Arthur Compton, professor of physics, University of Chicago; Dr. Ralph Pemberton, internist, Philadelphia; Dr. Harry E. Mock, assistant professor of surgery, Northwestern University Medical School, Chicago; Dr. Arthur U. Desjardins, department of radium and roentgen-ray therapy, Mayo Clinic, Rochester, Minn.; Dr. George Miller MacKee, associate professor of dermatology and syphilology, Columbia University College of Physicians and Surgeons, New York; Dr. W. B. Cannon, professor of physiology, Harvard Medical School, Boston; Dr. A. S. Warthin, professor of pathology, University of Michigan, and Dr. Francis Carter Wood, pathologist, director of the Institute of Medical Research, Columbia University, New York; also the ex-officio members: Dr. Olin West, Secretary and General Manager of the Association, and Dr. Morris Fishbein, Editor.

The major portion of the discussion was devoted to the scope of the work of the Council and methods of procedure. Three committees were appointed: (1) committee on organization; (2) committee on education; (3) committee on field, scope, nomenclature and present status of physical therapy. The last mentioned committee will have charge of the preparation of a series of fundamental reports on therapeutic methods and on the apparatus used for carrying out such methods. These three committees are to formulate reports for presentation at an early meeting of the Board of Trustees.

Ovarian Extract Useless as Therapeutic Agent.—The commercial preparations of ovary and parathyroid at present on the market are, according to the majority of competent observers, physiologically inactive, and in all probability useless as therapeutic agents. In the case of both these organs (as also of the pancreas) some special method of extraction is necessary in order to obtain a preparation containing the active principle.—Vincent, Swale: *Proc. Royal Soc. Med.* **18**:31 (June) 1925.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Osteopaths Cannot Be School Physicians.—The state attorney general's office has notified the state board of osteopathic examiners that school boards could not employ under the state law osteopaths to examine children in the public schools.

Hospital News.—The Kaspare Cohn Hospital, Los Angeles, in planning to build a 200-bed hospital, to be occupied before 1927. Its capacity now is fifty-five beds.——Construction will begin about January 1 on a new $1,500,000 unit to be erected at the Sawtelle Soldiers' Home. The new building will provide accommodations for 700 beds.

Illegal Practitioners Fined.—Andrew H. L. Kikkert, Pasadena, was found guilty, September 11, of violating the state medical practice act and was sentenced to pay a fine of $100 or in lieu thereof to serve thirty days in the county jail. W. Roy Graham, an unlicensed chiropodist, Alhambra, was found guilty of the same charge, August 24, and was sentenced to pay a fine of $100. Both fines were paid.

Appointments to State Board of Medical Examiners.—Governor Richardson appointed, October 7, Dr. Wilburn H. Smith, Los Angeles, a member of the state board of medical examiners to succeed Dr. Robert A. Campbell, Los Angeles, whose term expired, and Dr. Andrew W. Morton, San Francisco, to succeed Dr. Harry E. Alderson, San Francisco. Drs. Percy T. Phillips, Santa Cruz, and Charles B. Pinkham, San Francisco, secretary, were reappointed for four-year terms. Drs. Campbell and Alderson have been members of the board since its organization in 1913.

Lane Medical Lectures.—Dr. Vittorio Putti, professor of orthopedic surgery, University of Bologna, and director, Rizzoli Institute of Bologna, will lecture at Lane Hall, Stanford University Medical School, Sacramento Street, San Francisco, 8:15, November 9, on (1) "Congenital Dislocation of the Hip"; (2) November 10, "Arthroplasty—History and General Considerations"; (3) November 11, "Arthroplasty—Technic"; (4) November 12, "New Conceptions of the Pathogenesis of Sciatic Pain"; (5) November 13, "The University of Bologna in the History of Medicine."

DELAWARE

Arm Band for Whooping Cough Victims.—According to the *Atlantic Medical Journal*, the Delaware State Board of Health recently ruled that all persons having whooping cough would be compelled to wear a bright yellow band around the coat sleeve bearing the words "Whooping Cough State Board of Health." The band is supplied by the state. This preventive measure has been used with success, it is said, in the state of Connecticut and the city of Newark, N. J.

DISTRICT OF COLUMBIA

Personal.—Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, sailed, October 10, for Plymouth, Cherbourg and Bremen.

Society News.—The first meeting of the newly reorganized Society of Dermatologists of Baltimore and Washington will be at the District Medical Society Building, Washington, November 12. Dr. Henry H. Hazen, Washington, has been elected chairman; Dr. Lloyd W. Ketron, Baltimore, vice chairman, and Dr. Harry M. Robinson, Baltimore, secretary-treasurer.

FLORIDA

Malaria Survey.—The U. S. Public Health Service will make an extensive survey in Polk, Hillsborough and Citrus counties of malaria. Headquarters of the investigation will be at Lakeland under the direction of Bruce Mayne, assistant technical engineer, who investigated the malaria situation in this community in 1917. The present survey will require several months.

Dr. Levy Welcomed.—The Hillsborough County Medical Society, Tampa, held a formal welcome, October 6, for Dr.

Ernest C. Levy, who recently accepted the position of health officer of that city. Dr. Levy made a plea for cooperation between the local physicians and his department. Among the guests were Dr. Burdett L. Arms, state health officer, and Dr. Henry Smith of the state board of health.

ILLINOIS

Chiropractor Fined.—H. F. Kovski, Athens, a chiropractor, was found guilty of practicing medicine without a license and fined $100 and costs, October 8. Kovski was recently held to the grand jury on a charge of manslaughter following the death of a child in his office while undergoing "an adjustment," it is reported. No indictment followed.

Dr. Wightman Succeeds Dr. Lowry.—Dr. Grace S. Wightman, Chicago, has been appointed chief of the division of child hygiene and public nursing of the Illinois Department of Health, to succeed Dr. Edith B. Lowry, who held the position on a temporary appointment. Dr. Lowry did not compete in the civil service examination for a permanent appointment. Dr. Wightman was formerly director of the field department of the Chicago Municipal Tuberculosis Sanitarium.

Society News.—At the fifth annual meeting of the Tri-County Medical Society, Monmouth, October 1, Dr. David S. Hillis spoke on "The Use of Forceps in Obstetrics"; Dr. John L. Tierney, St. Louis, "Problems in Cardiovascular-Renal Diseases"; Dr. Vernon C. David, Chicago, "Fractures of the Femur in Children," and Dr. J. H. Hutton, Chicago, "Goiter." Among the other speakers were the Hon. John Lugg, mayor of Monmouth, and Dr. Olin West, Secretary and General Manager of the American Medical Association.

Outbreak of Snakeweed Poisoning.—It is reported that about fifty cases of an obscure ailment and one death occurred a few days ago in the vicinity of Collinsville and Maryville, and that the cause of the outbreak was attributed to the use of dairy products from cows that had eaten snakeweed. It was noted in a family in which there were eleven victims of the disease that the family cow also was sick. An investigation by veterinarians and physicians concluded that the cause of the outbreak was snakeweed eaten by the cows from which the human victims obtained butter and milk.

Entire Medical Society on Hospital Staff.—At the request of the board of directors of Highland Hospital, Belvidere, the Boone County Medical Society became the staff of the new hospital. The president of the medical society, Dr. Alden Alguire, becomes the chief of staff of the hospital; the vice president of the medical society, Dr. Robert B. Andrews, becomes assistant chief of staff; the secretary of the society, Dr. Frank S. Whitman, becomes secretary of the staff of the hospital and every member of the society becomes a member of the hospital staff.

Telephone Information Rules.—The Chicago Medical Society has maintained a telephone information bureau for its members for four years. The policy of the bureau to requests from the public has been not to give out names or recommend physicians. The result, says the official bulletin of the society, is that the bureau does not meet its requirements to the public. The question of changing the policy toward telephone requests for physicians was taken up by the council at its last meeting, which decided to appoint a committee of five to draw up a proposal for placing the Telephone Information Bureau at the disposal of the public. The proposal will be reported to the council, November 10, and will then be submitted, corrected or approved, to the branch societies at their December meetings. It will then be submitted with the replies from the branches, back to the committee, which will report it to the council for final disposition at the January meeting.

Chicago

Spurious Medical Diplomas.—It is reported in official correspondence that a so-called University of Trinity College, Chicago, has conferred the degree of Doctor of Medicine on two Japanese gentlemen and that a similar degree was also recently conferred by Lincoln-Jefferson University. Investigations show that although these so-called universities are "legally chartered," they have no buildings and equipment such as all reputable medical schools possess. The University of Trinity College is not listed in the Chicago telephone directory.

Medical Arts Club Reorganizes.—The Medical Arts Club announces a reorganization with the following officers and directors: president, John S. Nagel; vice presidents, John H. Cadmus, D.D.S., Robert H. Hayes; secretary, Frederick R. Green, and treasurer, William Allen Pusey. The new board of directors includes Drs. John S. Nagel, Robert H. Hayes, Hugh N. MacKechnie, J. H. Walsh, Charles E. Humiston, Arthur D. Black, M.D., D.D.S., A. A. Goldsmith, John H. Cadmus, D.D.S., Harry B. Pinney, D.D.S., M. M. Printz, D.D.S., Otto U. King, D.D.S., William Allen Pusey and Frederick R. Green. Plans are being developed looking toward early construction of a permanent home on a downtown site.

Society News.—Dr. James B. Herrick addressed a meeting of the woman's board of the Chicago Heart Association, October 20, on "What Women Can Do to Help in a Campaign Against Heart Disease"; Dr. Walter W. Hamburger on "Some of the Factors in a Comprehensive Cardiac Program," and Dr. Harrold A. Bachmann on "The Child with Heart Disease." Mrs. Morris Woolf is chairman of the woman's board of governors of the Chicago Heart Association; Dr. Herrick is president of the Chicago Heart Association.——Sir William Arbuthnot Lane, London, England, will address the Chicago Medical Society, November 4, on "Present Treatment of Fractures," and Mr. Philip Franklin, London, on "Newer Developments in Laryngology."——Dr. Malcolm L. Harris, chairman of the Judicial Council of the American Medical Association, was installed as president of the Chicago Medical Society at a banquet in the Hotel LaSalle, October 14.——Prof. Alfred N. Richards, Ph.D., professor of pharmacology of the University of Pennsylvania School of Medicine, Philadelphia, will address the Chicago Society of Internal Medicine and the Institute of Medicine of Chicago, at a joint meeting at the City Club, October 26, on "Experiments Concerning the Nature of the Function of the Kidney." There will be a dinner preceding the meeting in honor of Professor Richards.

Postgraduate Instruction at Rush.—A great program of postgraduate medical training is being developed in the new buildings of Rush Medical College and in the Presbyterian Hospital, Central Free Dispensary, John McCormick Memorial Institute for Infectious Diseases, the Children's Memorial Hospital, the Home for Destitute and Crippled Children, the Cook County Hospital, and the Country Home for Convalescent Children. Rush will take a prominent part in this program with three major objectives: (1) To afford recent graduates an opportunity to carry on research; (2) to provide clinics to enable practitioners to specialize, and (3) to provide intensive clinics conducted by leaders from one to three weeks to furnish review courses for general practitioners. For several years it will be necessary to carry on the last two years of undergraduate work of the University of Chicago medical schools at Rush Medical College. The new Rawson Building, occupying the site of old Rush College, has been completed; the laboratory building on Harrison Street has been reconstructed for clinical investigation and research, and a new program of development is in progress at the Presbyterian Hospital. The University of Chicago has furnished for about twenty-five years the buildings, equipment and teachers for the premedical courses and the first two years of medical training at Rush at a cost of about $250,000 annually, and in the campaign for medical funds in 1916-1917, Mr. Rawson, the late Dr. Bridge and others gave large sums for west side improvements. The university has underwritten a deficit of $170,000 in the construction of the Rawson Building and contributed $25,000 to the Rush budget for the current year. The Rush Alumni Association is a department of the alumni council of the university. The Rush alumnus has all the rights and privileges of alumni of the University of Chicago. It is natural that he should be loyal to the program of development of the university's medical schools. The number of Rush alumni is about 4,696, of whom 545 have subscribed to the development fund $155,632. There remains to be raised about $95,000 of the amount which the Rush Alumni Association agreed to secure. Dr. Ralph W. Webster, '98, Chicago, is president of the Rush Alumni Association; Dr. Charles A. Parker, '91, Chicago, secretary, and Dr. Carl O. Rinder, '13, Chicago, treasurer.

INDIANA

Children's Hospitals Meeting.—Dr. Isaac A. Abt, professor of diseases of children, Northwestern University Medical School, Chicago, addressed the children's hospitals meeting at the James Whitcomb Riley Hospital for Children, Indianapolis, October 24, on "Prophylaxis of Contagion in Children's Hospitals," and Dr. Howard C. Carpenter, Philadelphia, on "The Children's Hospital as a Community Center for Health

Teaching." Dr. Vilray P. Blair, associate professor of clinical surgery, Washington University School of Medicine, St. Louis, held a clinic on plastic surgery of the face, and Dr. Abt on acute and subacute conditions in children's diseases. There was a round table discussion in which hospital superintendents and chiefs of departments of hospitals took part.

KANSAS

Personal.—Dr. Martin V. Robbins, Cherryvale, has been placed in charge of the medical department of Armour and Company and the Fowler Packing Company of Kansas City. Dr. Robbins was formerly on the medical staff of Morris and Company before the Armour-Morris merger.——Dr. John O. Murrin has been appointed physician to the State Orphans' Home at Atchison to succeed Dr. Virgil Morrison.

KENTUCKY

Society News.—At a recent meeting of the Third District Medical Society in conjunction with the Barren County Medical Society, at Cave City, Dr. John D. Trawick, Louisville, spoke on "Kentucky's Crippled Children"; Dr. Herbert H. Hagan, Louisville, on "Conservative Treatment of Head Injuries," and Dr. William A. Weldon, Glasgow, on "The Use and Abuse of Atropin by the General Practitioner."

State Medical Election.—At the annual meeting of the Kentucky State Medical Society, Louisville, Dr. Robert L. Woodard, Hopkinsville, was installed as president; Dr. Irvin Abell, Louisville, was made president-elect, and Drs. James T. Reddick, Paducah, Thomas E. Craig, South Park, and William P. Cawood, Harlan, vice presidents; Dr. Harry A. Davidson, Louisville, delegate to the American Medical Association; Dr. James A. Orr, Paris, orator in medicine; Dr. Charles C. Garr, Lexington, orator in surgery, and Dr. Arthur T. McCormack, secretary (reelected). The next annual meeting will be at Frankfort.

MASSACHUSETTS

Personal.—Dr. John H. Gibbon, Philadelphia, delivered the annual address on the seventy-ninth anniversary of Ether Day at the Massachusetts General Hospital, Boston, October 16.

Pioneer Work in School Clinics.—Massachusetts established by law, a few years ago, school clinics throughout the state for the mental examination of every child who was three years or more retarded in the public schools. The object was to discover mentally defective children and to provide for them a kind of training that would make them self-supporting and safe members of society. Fourteen clinics have been established and in the last five years about 15,000 children examined. The examinations are not compulsory; 121 municipalities have requested the examination and 116 municipalities have thus been examined. Special classes are formed for these children and, according to the director of the division of feebleminded of the state department of mental diseases, no schools have discontinued these classes once they are formed.

MICHIGAN

Gift for Health Center.—Announcement has been made of the gift of $75,000 by Mrs. Leopold Wineman for the purpose of converting the North End Clinic in Detroit of the United Jewish Charities into the Wineman Memorial Health Center. The institution will be built on Holbrook Avenue near Oakland, and ground will be broken within a few weeks.

Hospital News.—A psychopathic hospital costing about $100,000 is being built at Ann Arbor as a unit of St. Joseph's Mercy Hospital on an 80-acre estate, 1½ miles from the city. It will accommodate fifty patients, and Dr. Theophil Klingmann will be the director.——Plans are being made for a $3,000,000 addition to the Herman Kiefer Municipal Hospital, Detroit.

Tuberculosis Clinic.—Twenty-nine members of the Berrien County Medical Society at Niles endorsed plans, September 17, for a permanent tuberculosis clinic in Berrien County presented by the County Tuberculosis Association. According to arrangements, a tuberculosis clinic will be held monthly, alternating in St. Joseph and Niles, and the cost will be covered by the Michigan State Tuberculosis Association. Dr. Benjamin A. Shepard, Kalamazoo, will conduct the clinics. At the conference in Niles, Dr. Samuel W. Becker, Mayo Clinic, Rochester, Minn., spoke on "Pernicious Anemia"; Dr. Milo K. Miller, South Bend, Ind., on "Chest Conditions in Children," and Dr. Harry L. Cooper, South Bend, on "The Value of Routine Physical Examinations."

MINNESOTA

Dr. Berglund Elected Professor of Medicine.—The University of Minnesota announces the election of Dr. Hilding Berglund, a native of Sweden, as professor and head of the department of medicine to succeed Dr. S. Marx White, who will devote his full time to private practice. Dr. Berglund came to this country in 1920 to study under Dr. Folin at Harvard University, and since 1923 has been assistant professor of medicine in Harvard University Medical School and an associate in medicine at the Peter Bent Brigham Hospital, Boston.

MISSOURI

Court Orders License Restored.—A circuit court judge in St. Louis ordered the Missouri State Board of Health, October 5, to restore the license to practice medicine of Dr. Walter E. Abell. The court held, it is reported, that Dr. Abell had satisfactorily completed his medical course, contrary to the findings of the board last August.

Ruling on Liquor Reversed.—The ruling of a county court prohibiting physicians who have state and federal liquor permits from having liquor in their offices was reversed in circuit court at Bloomfield, September 23, in the case of Dr. Dawsey Ryan of Bernie. Dr. Ryan, it is reported, was arrested and fined for having liquor in his office after the county had withdrawn the liquor permits of all physicians; he appealed, claiming that his state and federal permits allowed this privilege despite the rule of the county court. The court of appeals at Springfield reversed the decision and the case was dismissed.

Society News.—Dr. William Engelbach addressed the St. Louis Medical Society, October 13, on "Treatment of Ductless Gland Disorders Having Their Chief Complaints Referable to Other Systems."——The Jackson County Medical Society, Kansas City, October 13, held a symposium on the use of serums and vaccines in the contagious diseases of childhood, Dr. Charles J. Eldridge discussing infantile paralysis; Dr. Joseph B. Cowherd, diphtheria; Dr. Harry M. Gilkey, whooping cough; Dr. John Aull, scarlet fever, and Dr. Frank C. Neff, measles.——More than 1,000 physicians attended the annual fall conference of the Kansas City Clinical Society and the Medical Association of the Southwest, October 5-9. Among the visiting physicians on the program were Drs. William J. Mayo, Rochester, Minn.; Alexander Lambert, Benjamin S. Barringer, Russell A. Hibbs and John E. Weeks, all of New York; Arial W. George, Boston; Charles F. Hoover, Cleveland; Robert C. Coffey, Portland, Ore.; John O. Polak, Brooklyn; Roy B. Canfield, Ann Arbor, Mich., and Hugh T. Patrick and Isaac A. Abt, Chicago. Dr. Frank D. Dickson is president of the clinical society and Dr. Edward H. Skinner director of the clinics.

New York City

Postgraduate Course in Physiotherapeutics.—Columbia University offers a six weeks' clinical course in physiotherapeutics, with lectures, for graduates in medicine from November 9 to December 18, at the Beekman Street Hospital. The course will be limited to ten members and will not be given unless five applications are received. The aim is to include such work as to qualify students to practice the different forms of physiotherapy. The fee is $200, payable in advance. Communications should be addressed to the dean of the School of Medicine, 437 West Fifty-Ninth Street.

Academy Retires Librarian.—After forty-four years of service as librarian at the New York Academy of Medicine, Mr. John S. Brownne has been retired from active duty with the title of consultant librarian. In appreciation of his courteous and faithful service, a committee presented to Mr. Brownne a purse raised among the members and a beautifully engrossed resolution. The library has grown, during Mr. Brownne's term, from 10,000 volumes to 138,000 books and 100,000 pamphlets, and the staff from one to seven members; his most notable service was the development of the General Library Fund from nothing to about $42,000.

Clinics for General Practitioners.—The Hospital for the Ruptured and Crippled has arranged clinics especially for general practitioners, to be held the second and fourth Wednesdays of the month at 4 o'clock from October to May. Visiting physicians may examine the cases and confer with the surgeon in charge of the clinic in regard to any orthopedic condition. Notices of the meetings will be mailed on request to Joseph D. Flick, superintendent of the hospital, 321 West Forty-Second Street. The October 28 clinic will be given by Dr. Richmond Stephens, assisted by Dr. Toufick Nicola on (1) "Delayed Union of Fractures," (2) "Osteomyelitis," (3) "Rachitic Deformities" and (4) "Paralytic Deformities of the Feet."

Hospital News.—A group of physicians and business men will construct at once the "Park West Medical Building" on Seventy-Sixth Street just east of Amsterdam Avenue, which will open May 1, 1926, and be, it is said, the first private general hospital on the West Side with certain advantages announced. The building will be eight stories high, fire and noise-proof, with a capacity of seventy-eight patients and for general use except contagious diseases. About twenty-five physicians are intimately interested in the project, but the service and equipment will be at the disposal of all ethical physicians. The project has been financed by S. W. Straus & Company, and will cost $250,000.——The president of the Knickerbocker Hospital announced, October 3, that the new $500,000 building on Convent Avenue will be ready for occupancy Nov. 1, 1926, and that about half of the funds needed for its construction is now available. An entire floor in the new building will be devoted to the dispensary department.——Miss Mable Davies, who was decorated by the British and French for work as a nurse during the World War, has been appointed superintendent of the Beekman Street Hospital.——The Lutheran Hospital, Brooklyn, will soon begin the construction of a $700,000 service building.——The annual appeal of the United Hospital Fund will occur during Thanksgiving week. The fund will undertake to raise $1,000,000 to help care for persons unable to pay for treatment in its fifty-six nonmunicipal hospitals.——The cornerstone of the new Downtown Community House, 107 Washington Street, was laid, October 1. This organization, according to *New York Medical Week*, practically forms the social service department of the Beekman Street Hospital, there being an interlocking directorate.——The Booker T. Washington Sanatorium, One Hundred and Thirty-Eighth Street and Seventh Avenue, will move shortly to One Hundred and Thirty-Seventh Street and Edgecomb Avenue, where it has purchased two brick buildings.——The Bronx Hospital will conduct a campaign for $1,000,000 for a new building, November 10-20.——A new fireproof extension, accommodating twenty-eight patients, has been added to the Bay Ridge Sanatorium.——The Metropolitan Hospital of the Department of Public Welfare celebrated its semicentennial at the Hotel Plaza, October 15.

NORTH CAROLINA

Change of Date of Meeting.—The Medical Society of the State of North Carolina announces that the house of delegates has voted to change the place and time of the next annual meeting from Wilmington, April 20-22, to Wrightsville Beach, June 15-17. A new board of medical examiners will be elected at this session.

OHIO

Report of Medical Board.—Among the items in the annual report of the state medical board for the year ending June 30, 1925, is that the board licensed by examination in the last year 255 physicians and surgeons and by reciprocity 106. Applications for license were rejected on examination to twenty-three and on reciprocity to one. The board which has only two inspectors for the state in its enforcement division, in the last year investigated 425 cases, of which 159 were brought to arrest and of these 110 convicted; three of these cases were still pending and fifteen have been dismissed. During the same period twenty-six violators of the medical practice act left the state to avoid arrest and forty-five others ceased practice.

Stream Pollution Board.—A law became effective in July authorizing the state department of health to organize a stream pollution board. Already most of the municipalities and basic industries which contribute toward the pollution of streams and lakes have been organized into groups and the problems facing each group presented to them. Group meetings were held throughout the summer bimonthly and groups which have already organized to eliminate industrial waste and sewage include cities and the steel, dairy, paper and chemical industries and mines. The law authorizes the state health department to appoint a representative of cities, industries, agriculture and of sportsman groups to serve as a member of the state stream pollution board. The remainder of the board is made up of the members of the state public health council and it is empowered to study streams and lakes and classify them according to their importance as sources of water supplies and to map out definite plans for the gradual elimination of pollution. Before a city, industry or individual begins construction of additions to existing plants or new drainage systems, the plans must now first be submitted to the state board of health and be approved.

Medical Defense.—Since the Ohio State Medical Association placed its medical defense plan in operation in 1916 there had been 122 suits and ninety threats filed with the committee up to August 20, and the total cost of the plan had been $12,947.68. A report of the Medical Defense Council, July 1, showed that there were then twelve suits pending. Defense is not granted to a member of the state association who does not forward his application blank to its office within ten days after the service of summons, nor to physician who do not keep on file roentgenograms in fracture cases when alleged malpractice arises for such a case, or for a physician who has brought a "cross complaint" by suing to collect a bill within one year of the termination of his services. In a summary of the malpractice situation, the *Ohio State Medical Journal* assigns the increase in malpractice suits to such causes as careless remarks of other physicians, economic need (more suits are filed by the indigent) ambulance chasing lawyers, professional jealousy, and greatest of all the uncontested settlement of nuisance suits. The number of malpractice suits and threats in Ohio has remained about the same the last five years owing, it is said, chiefly to the plan of fighting to the finish and to the fact that physicians have grown more careful in their comments.

Cincinnati's Negro Health Problem.—The death rate last year among Cincinnati's negroes was almost double that among its white population; in the previous year the death rates were 15.1 and 26.3 per thousand inhabitants, respectively, and in 1922, 14.2 and 22.5. While the negroes of Cincinnati constitute only about 9 per cent. of the population, they contribute 28 per cent. of the deaths from tuberculosis; more than four times as many colored people as white people die of tuberculosis per thousand population. Of the colored children, almost three times as many of them die during the first year of life as among the white children. Negroes contributed more than 70 per cent. of the smallpox in the city last year; yet in one school (the Harriet Beecher Stowe School, which is exclusively for colored children) there was no smallpox because the children had been vaccinated. The board of health recently considered the negro health problem, and with its recommendation there has been started the Michael W. Shoemaker Health Center for negroes, conducted under the auspices of the Public Health Federation and the Negro Civic Welfare Association. The health activities of the center have been placed in the hands of a committee which will cooperate with the college of medicine and the department of health, and as the institution grows general clinics will be established.

OKLAHOMA

Personal.—Dr. Carroll M. Pounders has been appointed medical inspector of Oklahoma City schools.——Dr. John M. Dodson, executive secretary, Bureau of Health and Public Instruction, American Medical Association, will address the Oklahoma County Medical Association, October 24, on "The Work of the A. M. A. Headquarters," and on the preceding day addressed the Oklahoma Public Health Association at the Skirven Hotel, Oklahoma City.——Dr. George Boresky has resigned as assistant city physician of Oklahoma City.

PENNSYLVANIA

Pay for Repeated Vaccinations.—The state board of health informed the Huntsville Board of Health, October 6, that in instances in which there have been two previous unsuccessful vaccinations, the third vaccination must be done at the expense of the city.

Personal.—Dr. John A. Biever has been reelected president of the board of health of Columbia.——Dr. Edward B. Heckel has been elected president of the Pittsburgh Ophthalmological Society for the fourteenth consecutive year.——Dr. Clifford C. Hartman has been reappointed editor of the *Pittsburgh Medical Bulletin* of the Allegheny County Medical Society.

Slit-Lamp Society.—The Pittsburgh Slit-Lamp Society was formally organized, October 12, for the purpose of promoting the study of slit-lamp microscopy of the eye. Dr. William W. Blair, professor of ophthalmology, University of Pittsburgh School of Medicine, was elected president; Dr. George H. Shuman, secretary, and Dr. Adolph Krebs, treasurer. The society will meet monthly.

County Society Clinic.—More than 100 physicians attended the annual clinic of the Fayette County Medical Society, Uniontown Hospital, Uniontown, October 1. Dr. R. H. Jeffrey, the president, presided; among the speakers were Dr. David Riesman, professor of clinical medicine, and Dr. George P. Muller, professor of clinical surgery, both of the University of Pennsylvania. Dr. Muller also spoke at the banquet on "Newer Methods of Pedagogy at the University of Pennsylvania Medical School."

Hospital Room for Teachers.—The late Simon Gratz, formerly president of the board of education of Philadelphia, set aside in his will $50,000 to establish a private room in Jefferson Hospital for the use of school teachers free of charge. Mr. Gratz bequeathed to the trustees of the hospital $7,000 to be awarded to the graduate who is adjudged as having done within five years from graduation the most in the advancement of medical or surgical treatment of disease or in research work; also a bequest of $15,000 to Jefferson Hospital to establish three beds as a memorial to his mother, aunt and sister, and $5,000 to establish a bed as a memorial to his wife.

Society News.—Dr. Robert H. Ivy, professor of maxillofacial surgery, University of Pennsylvania Graduate School of Medicine, Philadelphia, addressed the September meeting of the Dauphin County Medical Society on "The Surgery of Facial Deformities."——Dr. Jesse O. Arnold, clinical professor of obstetrics, Temple University Department of Medicine, Philadelphia, addressed the Fayette County Medical Society, Uniontown, on "The Challenge of Higher Ideals in Practical Obstetrics."——Dr. Ulrich D. Rumbaugh addressed the Luzerne County Medical Society recently on "Toxemia of Pregnancy."——Sufficient funds have been pledged to the Fayette County Medical Society to assure the completion of its new home.——Dr. John H. Stokes, professor of dermatology and syphilology, University of Pennsylvania School of Medicine, Philadelphia, addressed the Northampton County Medical Society, Bethlehem, October 16, on "Skin Diseases."——Dr. Cortlandt W. W. Elkin, Pittsburgh, addressed the Allegheny County Medical Society, October 20, on "The Present Conception of Acidosis."

Philadelphia

Fees for Testimony.—Judge Joseph H. Taulane, of the court of common pleas, has ruled that a physician subpenaed in a court case to testify must do so under the same conditions and for the same fee as paid to other witnesses. If, however, a physician is called to give expert testimony he is entitled to a larger fee.

Popular Science Lectures.—The Philadelphia College of Pharmacy and Science, which recently opened its one hundred and fifth session, will give a series of thirteen popular science lectures at the Y. M. C. A. on alternate Thursday evenings, beginning October 8, which will be broadcasted in abstract form on the following Saturday evening from Station WIP.

Professor Janet Holds Clinic.—Dr. Pierre Janet, professor of psychopathology in the Collège de France, Paris, held a clinic at the Philadelphia General Hospital, October 12, and the following day addressed graduate students of the department of psychology at the University of Pennsylvania; a reception in his honor was given at the home of Dr. S. DeWitt Ludlum, professor of psychiatry, Graduate School of Medicine, University of Pennsylvania. Dr. Janet has been in Mexico as an exchange professor.

Sesqui-Centennial Fund Oversubscribed.—The campaign to raise $3,000,000 by the sale of participation certificates to expedite the construction of buildings for the Sesqui-Centennial celebration went over the top, October 10, the total amount subscribed having been exceeded on that date by about $6,000. The campaign to raise funds started ten days ago and a number of prominent physicians of Philadelphia took part (The Journal, October 17, p. 1232).

Child Guidance Clinic Opened.—An organization known as the All-Philadelphia Child Guidance Clinic has been established with headquarters at 1711 Fitzwater Street, prepared to spend $100,000 in the interest of children's welfare. The funds are being furnished by the New York Branch, which plans a permanent clinic here at the end of two years to assist children presenting problems in behavior and personality. Dr. Frederick H. Allen, formerly resident psychiatrist at Johns Hopkins University, is director of the clinic.

RHODE ISLAND

No Essays on Plastic Surgery.—In the ninetieth annual report of the Fisk Fund to the Rhode Island Medical Society, the board of trustees reported that no essays were submitted for the 1925 prize, the title offered being "Plastic Surgery." The trustees offer for 1926 a prize of $300 for the best essay on "Recent Progress in the Prevention and Treatment of Scarlatina, Measles and Diphtheria."

Dr. Coll's License Revoked.—The secretary of the state board of health writes that the license to practice medicine and surgery in Rhode Island of Dr. James P. Coll was revoked, September 24, on charges of (1) gross unprofessional conduct, (2) conduct of a character likely to deceive and defraud the public, and (3) deception in obtaining certificate. The only James P. Coll of which the American Medical Association has a record was located at Blandford, Mass., and is said to be the head of the Electro-Medical Doctors' Institute at Springfield, Mass. He was found guilty, Sept. 15, 1924, in the district court of Massachusetts of practicing medicine without a license (The Journal, Aug. 16, 1924, p. 539, and Oct. 4, 1924, p. 1084).

SOUTH CAROLINA

Personal.—Dr. Roderick MacDonald, Blackstock, Fairfield County health officer, has resigned and will go to Philadelphia, October 1, to take up postgraduate work.——Dr. George D. Heath, physician to the Clemson College, Clemson, for more than four years, has resigned to take special work at Johns Hopkins University, Baltimore.

Society News.—At the annual meeting of the Seventh District Medical Association, Sumter, September 10, Dr. Henry M. Stuckey, Sumter, was elected president and Dr. Carl B. Epps, Sumter, secretary-treasurer. Dr. Robert S. Cathcart, Charleston, president of the South Carolina Medical Association, spoke on subjects pertaining to the state association, and among others, Dr. Richard M. Pollitzer, Greenville, on "Acute Poliomyelitis; with Case Reports"; and Dr. Stewart R. Roberts, Atlanta, Ga., on "The Classification of the Blood Pressures." The next annual meeting will be at Kingstree the second Thursday in September, 1926.

TEXAS

School for Sanitarians.—Under the auspices of the Texas Association of Sanitarians, the annual short school for sanitarians, met in Waco, October 7-10, under the direction of W. Alfred Buice, professor of public health, Baylor University, and the presidency of Dr. Arthur H. Flickwir, Houston. Among the lecturers were Elliot H. Gage, U. S. Public Health Service, and Dr. Clarence S. Drake, Chicago.

Reserve Officers on Duty.—Forty-one army medical reserve officers recently completed fifteen days of active duty with the Second Medical Regiment of the regular army at Fort Sam Houston. Among other duties was the actual physical examination of about 1,100 applicants for entrance to the citizen's military training camp at Fort Sam Houston; in conjunction with regular army officers, the forty-one reserve officers examined about 300 boys per hour.

Freshman Class at Texas University.—The dean of the University of Texas Department of Medicine, Galveston, writes that there were 113 applicants for admission to the freshman class this year, which was limited to sixty, and that selections were made on a scholarship basis. The lowest general average of any freshman in his premedical college work was 75. The selections are made, August 10, and Texans are given preference. The medical school has just opened a new $300,000 laboratory building.

WEST VIRGINIA

Court Ruling on Term of Health Officers.—The attorney general has ruled that county health officers cannot remain in office after their terms have expired until their successors are appointed, and that the county court has no authority to pay any salary to a health officer after the expiration of his term. The ruling was made in the case of Dr. Joseph R. Hughart, health officer of Monongalia County, whose term expired, June 30, and who has since been acting as health officer, although not reappointed.

PHILIPPINE ISLANDS

Committee on Treatment of Leprosy.—The clinical investigation of leprosy at the San Lazaro Hospital, Manila, is carried on by a committee, which keeps a record of each patient, noting the treatment given, the course of the disease and the final outcome. The committee has recently been reorganized with Dr. Jose P. Bantug, chairman, and Drs. Leoncio Lopez-Rizal, Regino Padua, Manuel V. Arguelles, Samuel Tietze and Proceso Gabriel, members.

Demonstration in Sanitation.—At the recent town fiesta in Santa Ana, Pampanga, members of the Philippine Health Service cooperated with the local health officer in giving a sanitary demonstration by moving pictures which showed the life history of the fly, the diseases it transmits and how to exterminate the fly. A similar demonstration was given of the mosquito. There was a large and enthusiastic audience, some of whom propounded questions on these subjects. The demonstration was accompanied by a discussion of typhoid fever.

Personal.—According to the *Journal of the Philippine Island Medical Association,* Dr. Sulpico A. Chiyuto has been appointed chief of the Culion Leper Colony, effective, Aug. 1, 1925, to succeed Dr. Avellana Basa, resigned.——The Philippine delegates to the Sixth Congress of the Far Eastern Association of Tropical Medicine at Tokio, Japan, October 12-31, were Major Arthur P. Hitchens, Army Research Board, Drs. I. Oto Schobl, Bureau of Science, Agerico B. M. Sison of the College of Medicine, and Leoncio Lopez-Rizal and Cristobal Manalang, both of the Philippine Health Service.

GENERAL

Typhoid Outbreaks.—Recent press dispatches note that outbreaks of typhoid fever have occurred at Hutchinson, Kan., forty-five cases (October 6); at Kingston, N. Y., twenty-two cases and four deaths (September 24); at Montgomery, Pa., twenty-eight cases and one death (October 5); at Bridgeville, Pa., fourteen cases (October 7), and at Barnsboro, N. J., twelve cases (October 10).

Travel Study Club.—The Travel Study Club of American Physicians has decided on a 1926 study tour to London, Paris, Switzerland, Munich, Vienna and Berlin. The tour will be limited to members and friends recommended by them. Dr. Louis L. Seaman and Dr. Richard Kovacs, New York, were reelected as president and secretary-treasurer, respectively, at the ninth annual reunion of the club, and Drs. Edward B. Heckel, Pittsburgh, John P. Lord, Omaha, and Fred H. Albee, New York, vice presidents.

Commission on Medical Education.—The commission initiated by the Association of American Medical Colleges to survey medical education in the United States met at Buffalo, October 19, and elected A. Lawrence Lowell, president of Harvard University, Cambridge, Mass., chairman; Dr. Willard C. Rappleye, director of study, and Dr. Fred C. Zapffe, Chicago, treasurer. It was decided that the director should collect data and other material bearing on the subject of medical education, and that this material would be studied at a meeting to be called by the director. In furthering the the work of the commission, the Rockefeller Foundation has subscribed $50,000, the Carnegie Foundation $40,000, the medical colleges which are members of the Association of American Medical Colleges $26,000, and the American Medical Association, $15,000.

Academy of Ophthalmology and Otolaryngology.—The thirtieth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be at the Hotel Sherman, Chicago, October 19-24, under the presidency of Dr. Horace Newhart, Minneapolis. The American Board for Ophthalmic Examinations and the National Board of Examiners in Otolaryngology will hold examinations Monday morning, October 19, preceding the opening of the academy, at the Cook County Hospital. There was a list of 123 candidates for fellowship in the academy submitted. The ophthalmologic exhibit was under the direction of Major James F. Cupal, U. S. Army. Joint scientific sessions were held Tuesday and Wednesday mornings, and papers in ophthalmology presented Tuesday afternoon and Thursday morning and in otolaryngology Wednesday and Thursday afternoons. An opportunity at each session was given for the presentation of cases and the demonstration of new instruments. A golf tournament was arranged for October 19 at the Flossmoor Country Club. The usual banquet was held, October 21.

Society News.—At the recent annual meeting of the Association of Military Surgeons of the United States, New York, Surg. Gen. Edward R. Stitt, U. S. Navy, was elected president, to succeed Surg. Gen. Hugh S. Cumming, U. S. Public Health Service; Surg. Gen. Merritte W. Ireland, U. S. Army, Col. Frederick H. Vinup, Maryland National Guard, Asst. Surg. Gen. Claude H. Lavinder, U. S. Public Health Service, and Brig. Gen. William H. Wilmer, Baltimore, vice presidents; Col. Jefferson R. Kean, U. S. Army, retired, secretary, and Major Edgar E. Hume, U. S. Army, treasurer. George E. Vincent, president, Rockefeller Foundation, addressed the association at a dinner at the Waldorf-Astoria, October 9; among the foreign delegates were Medical Inspector General of France J. F. A. Rouget; the medical principal of the French War College, Colonel Speare; Rear Admiral Edward Sutton of England; Dr. Dolybe Coryllos of Greece; Capt. Wao Nagimo, and Commander Kakuenara Marchimo of Japan; Major Giuseppe Rolando of the Royal Italian Navy, and Lieut. Col. Bolidan Hulewicz of the general staff of the Polish army.——All the present officers of the Medical Association of the Southwest were reelected at the recent annual meeting in Kansas City. They are Dr. Truman C. Terrell, Fort Worth, president; Drs. Edgar C. Duncan, Fredonia, Kan.; Clarence B. Francisco, Kansas City, Mo.; Sidney J. Wolfermann, Fort Smith, Ark., and Samuel E. Mitchell, Muskogee, Okla., vice presidents, and Dr. Edward H. Skinner, Kansas City, secretary-treasurer.——At the annual meeting of the National Association of Police and Fire Surgeons, Grand Rapids, Mich., October 7, Dr. Harry M. Archer, New York, was reelected president; Dr. Daniel J. Donovan, New York, vice president, reelected, and Dr. John J. White, New York, secretary, reelected; Dr. Joseph A. Kene, New York, was elected treasurer. The 1926 meeting will be in Philadelphia and the 1927 meeting in Los Angeles.

Campaign to Endow a Home for Physicians.—The directors of The Physicians' Home, Inc., announce the opening of a campaign to endow a national home for aged and incapacitated physicians. Dr. Charles H. Mayo, Rochester, Minn., is head of the Committee of Sponsors, who will be in charge of the campaign, and the American Medical Association has endorsed the project. The general plan, as outlined by the president of the Physicians' Home, Inc., Dr. Robert T. Morris, formerly president of the American Association of Obstetricians and Gynecologists and professor of surgery emeritus, New York Post-Graduate Medical College, is to care for at least 1,000 physicians at the national home and a very much smaller number in units to be established in other parts of the country. The total amount sought in the campaign for the home will probably be several millions of dollars so as to guarantee the upkeep of the main institution and the smaller units. The Physicians' Home, Inc., is not an experiment. One unit was established four years ago at Caneadea, N. Y., through the generosity of Dr. Stephen V. Mountain of Olean. He donated a twenty-eight room building on a 186 acre farm on the Genesee River in central western New York. This has been successful and it becomes the duty of the directors to enlarge the enterprise. There is a large waiting list for admission which cannot be accommodated at the Caneadea unit. This is the first movement of its kind in this country to sustain an institution which will care for members of the medical profession who through illness, age, generosity or devotion to science are unable in their declining years to provide for themselves and their dependents. The campaign will be a dignified effort on the part of the profession to take care of its own needy ones, and the appeal for funds will be made to the public. Funds will be secured through the organization of groups in various localities. The campaign will be in charge of Mr. Charles Capehart and Mr. James F. McGrath, and the national headquarters are on the twenty-second floor of the Times Building, Forty-Second Street and Broadway, New York, where inquiries should be sent. Checks should be drawn to the order of "The Physicians' Home, Inc.," and forwarded to Dr. Albert G. Weed, national secretary, at the address given above.

LATIN AMERICA

Personal.—On the retirement of Prof. Azevedo Sodré from the chair of clinical medicine at Rio de Janeiro, after forty-one years' incumbency, a commemorative tablet was unveiled with much ceremony and many tributes in the Misericordia hospital. He is director and editor of the *Brazil-Medico.*——The Argentine Academy of Medicine recently elected to honorary membership Profs. P. Duval and L. Bernard, of Paris, and Prof. Rio del Hortega, Madrid, as corresponding member. The three have been lecturing in the eastern Atlantic states of South America.

University Exchanges Between Argentina and Austria.—The *Münchener medizinische Wochenschrift* quotes the details of the recent arrangement between Rosario and Vienna providing for interchange of professors. Each is to remain a year or longer but is not entitled to practice. Each Vienna professor is to be given traveling expenses, a home in the Centenario Hospital and 300 pesos. The Rosario professor gets the equivalent of this except the traveling expenses. It is stipulated that the Vienna professors must be able to speak Spanish, Italian or French and the Rosario professors German or French. Interchange of students is also contemplated later.

FOREIGN

New Medical Journal.—The first number of *The Post-Graduate Medical Journal,* the official organ of the Fellowship of Medicine, contains, among other things, an article by Sir Humphry Rolleston on "The Medical Aspects of Gallstones," and a supplement giving the program for 1925-1926 of postgraduate instruction in London. It is published in London and communications should be addressed to 1 Bedford Street, W. C., 2.

The Fight Against Malaria in Italy.—An exhibition was held recently at Naples showing the work accomplished in redeeming the marshes in Italy. Nearly four million acres have been drained—about two thirds of this since the war. Six pavilions housed the exhibition showing conditions before and after the draining operations. Count Camillo Valle is chief of the Federazione Nacionale delle Bonifiche, which centralizes the forces of private, communal and national efforts in this line.

Personal.—Dr. Esther Gimson-Bare, superintendent of the Clara Swain Hospital, Bareilly, India, a medical missionary from the Methodist Church since 1904, has been awarded by King George the Kaisar-I-Hind Medal for conspicuous service to the British Empire.——Sir Humphry Rolleston, president, Royal College of Physicians of London, and Regius professor of physic, Cambridge, gave the introductory address at the opening of the winter session of the University of Durham College of Medicine, Newcastle-upon-Tyne, October 6, on "Physic and Poetry."——Dr. William Hill, London, gave the opening address of the winter session at the Central London Throat, Nose and Ear Hospital, October 6, on "Practice at the Central in the Late Eighties."

Director of Obstetric Research.—The Council of the University of Melbourne, Australia, has announced that it will appoint a director of obstetric research for two years at a salary of £2,500 per annum with funds donated by the Edward Wilson "Argus" Trustees. The successful candidate for the position will be required, says the *British Medical Journal,* to devote his whole time to obstetric research, to make a survey of obstetric work in Victoria, to investigate the causes of maternal mortality and morbidity in the state of Victoria, and to promote methods for their prevention and treatment. He will also investigate methods of teaching obstetrics, the condition of obstetric practice in hospitals and rural districts and the condition of postgraduate study and prenatal work. The university has appointed a special committee representing the faculty and the Victorian Branch of the British Medical Association which will cooperate with and assist the director.

Course in Ophthalmology in the Chinese Language.—An epochal event occurred early this year in the history of medicine in China with the giving of the first postgraduate course in ophthalmology in the Chinese language at the Peking Union Medical College, Peking. Dr. Harvey J. Howard, head of the ophthalmology department, writes in the *American Journal of Ophthalmology* that the course was carried on under the direction of Associated Professor Tsing-Meu Li, assisted by four junior members of the staff. The course was in the northern mandarin dialect. All teaching at the college has been carried on in English, but there was such a demand for instruction in Chinese that this course was undertaken as an experiment. Nineteen physicians took the course and there were far more applications than could be accepted. Nine of the eighteen provinces in China were represented in the class. The plan now is to alternate the customary Chinese New Year's course by giving it one year in English and the next in Chinese.

Medical Congresses of the Northland.—The fourth congress of tuberculosis specialists of the Scandinavian countries was held at Stockholm in August. One afternoon was devoted to a discussion of "Sanocrysin," and the *Norsk Magazin for Lægevidenskaben* says that the general impression was a disappointment. The indications for "Sanocrysin" have been restricted more and more.——The fourteenth internal medicine congress was held at Stockholm at the same time. The subject appointed for discussion was "Jaundice and Functional Liver Tests." Prof. I. Holmgren presided and emphasized anew in his address that internal medicine is the "mother science" of all medicine. Scheel said he had studied extensively the various liver tests, and such conflicting results had been obtained with certain ones that he regards them as useless for tests of liver functioning. He specified in this group "the carbohydrate test, amino-acid overloading test, the Hay reaction and the latest American stain tests." He was unable to confirm the French statements in regard to "dissociated icterus"; that is, the isolated appearance of bilirubin in the urine. Marcus related that the blood sugar curve after injection of epinephrin could be modified by hypnotic suggestion. E. Kylin stated that he had been able to influence the action of epinephrin and insulin with electrolytes (calcium and potassium). Lundsgaard reported that his research has demonstrated that insulin in the test tube acts on sugar only when muscle cells are added to the insulin-sugar mixture. Also that insulin's action on sugar is in the line of a transposition of the atoms of the sugar molecule, making it easier to assimilate. The next congress will be held in Copenhagen in 1927. The subject suggested for the main topic was "Anaphylaxis."

Deaths in Other Countries

Dr. **Alfredo Ellis**, senator from the state of São Paulo, Brazil, aged 75. He studied medicine at the University of Pennsylvania.——Dr. **A. Richaud**, professor of pharmacology, Paris, aged 60.——Dr. **Otto Mugdan**, Berlin, long a member of the reichstag and leader in measures for the public health and for the organization and advancement of the profession, aged 63.

CORRECTION

Use of Gentian Violet in Thrush.—In the communication of Drs. Faber and Dickey (The Journal, October 10, p. 1154), the quotation from Churchman should have read "strokes of stained gram-positive organisms" instead of "gram-negative."

Government Services

General Allen Given Honorary M.D.

Major Gen. Henry T. Allen, U. S. Army, retired, commander of the American forces in the Rhineland, has been given an honorary medical degree by the medical faculty of the University of Frankfurt as a token of appreciation of the work done by Americans for the children of Germany.

Dr. Grubbs Detailed Assistant Surgeon General

Orders issued September 28 by the U. S. Public Health Service detailed Dr. Samuel B. Grubbs as assistant surgeon general in charge of the Division of Foreign and Insular Quarantine and Immigration of the Public Health Service.——Surg. John S. Boggess has been directed to proceed from Detroit to New York to accompany the immigration inspector taking leper aliens to that city for deportation, and to return by way of Washington for a conference.

Army Personals

Major William A. Foertmeyer, Letterman General Hospital, San Francisco, has been ordered to his home to await retirement.——Major Edmund W. Bayley has been relieved from the army transport service, Fort Mason, Calif., and ordered to the Presidio of Monterey, Calif., for duty.——Capts. Emory H. Gist and Hugh M. Bullard will sail about Jan. 6, 1926, from New York to Hawaii for duty.——Capt. Wesley C. Cox is excepted from the provisions of the National Defense Act which require duty with troops of one or more of the combatant arms.——Col. Henry A. Webber, Atlanta, has been ordered to the Army and Navy General Hospital, Hot Springs, Ark., for treatment.——Major Charles P. Martin has been ordered to sail from China on the first transport to the Letterman General Hospital, San Francisco, for duty.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 3, 1925.

Outbreak of Paratyphoid Fever Due to a Carrier

In the Borough Hospital of Croydon (a district of London) eighteen persons are under treatment for paratyphoid fever which has been traced to a pastrycook. The patients include two children and comprise both sexes up to the age of 40. They ate confectionery or meat pies which, though purchased in different shops, were all made in the establishment where the pastrycook was employed. He appears to have had a mild attack of paratyphoid in August and continued to work while suffering from the disease. None of the cases proved fatal, though there were some sharp attacks. In the pastrycook's blood was found the paratyphoid bacillus. Since he ceased his employment, no further cases have occurred.

A Band of Blood Donors

A branch of Red Cross work almost unknown to the public is the London Blood Transfusion Service, which was organized in 1920 by the Camberwell division of the Red Cross Society. The first application for a donor was made by King's College Hospital, and four volunteers came forward. In June, 1922, a request was received from Guy's Hospital, and four out of eight volunteers were selected and each underwent transfusion at fortnightly intervals. In the meantime other hospitals heard of the scheme and fresh applications came in, with the result that by the end of the year twelve transfusions had been carried out. During 1923 ten cases were served; in 1924, sixty-two; and up to date, 247. A year ago it became apparent that the Red Cross members could not cope with the demands, and an appeal was made for more volunteers. Among the replies was one from a rover scout (a scout who has reached a certain age). He interested his headquarters in the work, with the result that it was taken up as a regular branch. More than 150 members of this organization are now on the roll, which is more than half the total. So numerous have the calls become for donors that a special appeal has been issued and it is expected that soon there will be 1,000 donors on the roll. Calls come at all hours of the day or night, and there is never more than an hour's delay between the receipt of the call and the donor's arrival at the hospital.

Infectious Diseases in London

The annual report of the Metropolitan Asylums Board (which controls the service for infectious diseases in London) directs attention to an increase of diphtheria in the last fifteen years. The probability of a child under 10 contracting diphtheria is now twice as great as it was prior to 1911. The board considers this a strong argument for some form of immunization, such as has proved successful in New York. Every new nurse on joining is now submitted to the Shick test. One of the board's officers, Dr. F. H. Thomson, medical superintendent of the North Eastern Hospital, has urged the revision of the methods of bacteriologic culture before discharging diphtheria convalescents. He has found that, by a more intensive system, in which six consecutive negative cultures from the throat and nose spread over a period of three weeks, were required, a certain number of carriers who continued to show virulent diphtheria bacilli were found. The year 1924 was marked by a heavy incidence of epidemic (lethargic) encephalitis. The cases numbered 611, almost thrice those of the highest previous record (233 in 1921). The need for providing institutional treatment for juvenile cases is realized. With a view to diminishing the number of cases of otorrhea in fever hospitals, the board some years ago appointed an otologist, Mr. T. B. Layton, to investigate the problem. As a result of an extensive study he has made the following recommendations for the treatment of ear disease in scarlet fever: 1. Incision of the drum-head in every case in which it can be found bulged before it ruptures. 2. When otorrhea has occurred, instillation of antiseptic hygroscopic drops (glycerite of phenol, 1 part; rectified spirit, 1 part, and glycerin, 2 parts, are used by Mr. Layton). 3. Considering the question of operating on adenoids when there has been an ear discharge for twenty-one days in simple scarlet fever, or longer in septic scarlet fever or mixed infections. 4. Performing Wilde's incision as soon as a retro-auricular swelling or edema appears when this is not due to cervical adenitis. 5. Opening the mastoid in such acute conditions of the bone as do not seem amenable to Wilde's incision. 6. Operating on the mastoid when the ear discharge threatens to become chronic and evidence of changes in the bone is found by roentgenography or otherwise. 7. Heliotherapy for patients that tend to develop chronic otorrhea, whether these have had operative treatment or not, and whether they have suffered from simple scarlet fever, septic scarlet fever or mixed infection. These recommendations were carefully considered by a committee of medical superintendents of the board's hospitals. With one exception they met with unanimous approval. In regard, however, to the advisability of incising the drum-head in every case of bulging, the committee felt considerable doubt, contending that the opportunity of performing anticipatory puncture is often precluded because a discharge is often the first evidence that the ear is affected, and that the procedure is practicable only in a small minority of cases.

A Hindu Community Threatened with Extinction

The Hindu community of Kashmir, according to Dr. Kathleen Vaughan, who has returned to England from that country, is threatened with extinction, though it is one of the oldest and most intellectual races in the world and is the ruling race in that country. Though 95 per cent. of the people are Mohammedans, they are ruled by Hindus. The causes of the decay of this fine race, which is decreasing at a rate of 1,000 per annum, are, according to Dr. Vaughan, never heard. She finds four great causes, which, if unchecked, will lead to the extinction in a few decades. These are venereal disease, tuberculosis, osteomalacia among the women, and infanticide. Tuberculosis and osteomalacia appear to be increasing rapidly among the richer classes, who deprive themselves, and especially their wives, of sunlight and fresh air. Many infants, both boys and girls, are deliberately sacrificed at birth. They are thrown into the river or strangled if they are not wanted. In the case of a girl, the parents may not desire the expense of providing a dowry, or the child may be born at an unlucky hour. An astrologer is always consulted, and if the horoscope is not auspicious the infant is not allowed to live. Another reason is that the child is diseased or will not take the breast. The mother has no voice in the decision; it is the husband's mother who decides and sometimes even smothers the child herself.

The Health of Merchant Seamen

Official reports on the health of the navy, as on that of the army and the air force, are issued annually, but there is no report on the 235,000 men who form our merchant marine, though port health officers mention the subject occasionally as it comes before them in the course of their work. However, the board of trade publishes annually a return of the deaths that occur on British ships. It is somewhat late in appearing, as that for 1923 has only just been published.

It shows that there were 724 deaths from injury and 659 from disease. Of the latter, 379 occurred in British, forty in foreign and 240 in lascar seamen. The death rate of British seamen was 5.12 per thousand—a considerable improvement on that of twenty years ago, which was 11.25. Pneumonia kills a few less now than then, tuberculosis and malaria only two thirds as many, typhoid a half, alcohol a quarter, and smallpox a fifth. Yet, as pointed out by Fleet Surgeon W. E. Home in the *Times,* the strong, healthy men of the merchant marine have twenty times the death rate from typhoid that their brethren, the strong with the weak at the same ages, have ashore in England and Wales, and just as much pneumonia.

The Antiquity of Man

Dr. Ales Hrdlicka, curator of the division of physical anthropology, U. S. National Museum, Smithsonian Institution, Washington, has arrived in this country from South Africa, the last country visited in a long anthropologic tour. To a representative of the *Times* he stated that, March 19, he started on a mission from the U. S. National Museum to India, Ceylon, Java, Australia and South Africa for the purpose of tracing and seeing everything bearing on the antiquity of man and the higher apes. He found that in all these countries, with the possible exception of Australia, there is a great deal to be done and much to be expected from researches in this subject. Most of the recent discoveries have been made in the countries of the British empire. India alone has given the remains of five or six varieties of extinct anthropoid apes. In Java, which has given us the most precious of the prehuman forms so far known, *Pithecanthropus erectus,* much remains to be done. The banks of the river that yielded these unique relics are full of fossil bones. The most promising recent finds have been in South Africa—the Rhodesian man and the Taungs great fossil ape These forms were never expected in those localities and the sites are not yet exhausted. As to the biologic position of the Taungs remains, Dr. Hrdlicka considers that they are, as pointed out by Sir Arthur Keith, those of a hitherto unknown manlike ape, possibly somewhat superior even to the chimpanzee. But the last word cannot be said on the subject until an adult specimen of the species has been discovered. The present find is that of a child ape, at the beginning of the second dentition.

PARIS

(From Our Regular Correspondent)

Sept. 28, 1925.

The Antisyphilis Dispensary at Creil

The Ligue nationale française contre le péril vénérien, which comprises practically all the syphilologists in the country, is putting forth every effort to suppress syphilis. If all right-minded persons will give aid, the league hopes to free France from syphilis within ten years. Up to the present time a good organization has been lacking. Dispensaries well equipped and directed constitute the centers of the crusade. The league recently opened at Creil a dispensary, which is the first of a series that it hopes speedily to complete. The league demands from the central government only a percentage of the funds it needs. It secures the remainder from the municipalities, the administrations, certain groups and from generous private individuals. For example, at Creil, Baron and Baroness R. de Rothschild have offered a wing of an ancient castle for the dispensary and have had a fine laboratory erected as an annex. They have even agreed to furnish light, water and a nurse and housekeeper. The manufacturers of the region have consented to pay, toward an annual subvention fund of 15,000 francs, 2 francs for each workman in their employ. This fund will pay the operating expenses of the dispensary, which is to serve this industrial center. With the aid received from many private sources, the league has equipped and opened the dispensary at Creil without requesting funds from the central government, the department of Oise or the city. With its admirable equipment and modern laboratory, it is a very inviting place. The patients go there without apprehension and take pleasure in returning. It adjoins a dispensary for respiratory diseases and, consequently, patients who come to the consultation room awaken no unpleasant suspicions in the minds of acquaintances who may see them. In the same building there is a consultation center on infant care, which furnishes many cases of heredosyphilis. The physician in charge of the dispensary, the head of the laboratory and the assistants, appointed after competitive examination, are of unquestionable skill, and receive adequate compensation.

There will be amicable cooperation between the dispensary personnel and the physicians of the region round about. The only patients received at the dispensaries of the league are either indigent or are referred by their physicians. The dispensary is widely used by practitioners for the establishment of diagnoses, for laboratory examinations and as a source of therapeutic information. It is not a center of treatment other than for the indigent.

With such an organization, dispensaries such as the one at Creil are destined to render great service.

Death of Professor Richaud

The University of Paris Faculty of Medicine has lost by death its professor of pharmacology, A. Richaud. Richaud had been pharmacist to the hospitals and, since 1901, agrégé professor at the Faculté de médecine, succeeding Professor Pouchet on his retirement because of age. He did important work on inulin and inulase, on the pharmacodynamics of ouabain and strophanthin, on the coagulation of blood and on the relation of calcium to cardiac muscle. Richaud condensed his lectures into a compendium, which has passed through several editions. For many years he had served actively on the Conseil supérieur d'hygiène.

A Medical Degree for Dentists

At a recent meeting of the Société de stomatologie, M. Paul Boudina questioned whether dentists who do not hold an M.D. degree should be allowed to practice vaccinotherapy, and whether or not the degree of dental surgeon *(chirurgien-dentiste)* should be abolished and an M.D. degree be demanded of all practitioners of dentistry.

Since the present law allows a physician to practice dentistry in all its branches and have recourse to all the resources of therapeutics, a simple dentist's range of action should be limited and he should not be authorized to administer special forms of medication, including the use of vaccines, serums and toxic substances. The ministerial decree of July, 1917, which limits the use of toxic substances by *chirurgiens-dentistes,* established this principle very plainly.

Since a dentist may treat cases requiring vaccines or toxic drugs (which he has not the authority to administer), it would seem desirable that his field be extended. This cannot be legally accomplished except by the acquisition of the M.D. degree.

So-Called Conjugal Tuberculosis and Tuberculous Contagion in Adults

Thinking that a good series of statistics of cases of conjugal tuberculosis would be excellent material to determine the importance of exogenous superinfection in an organism already infected in childhood, E. Arnould in the *Revue de la Tuberculose* has collected statistics of 53,069 homes in which tuberculosis was manifest and in which in 4,472 cases it affected both husband and wife. After a critical sifting, he gives the proportion of conjugal tuberculosis as about 10 per cent. Since the average tuberculosis morbidity among the urban population in the 20-50 age group may be placed at 5 per cent., we have a basis for comparison. The frequency of conjugal tuberculosis is, therefore, not very high and is disproportionate to the opportunities offered for contamination. This finding lessens the importance of exogenous reinfection in the adult, although contagion remains the origin of primary tuberculosis in childhood and adolescence. These considerations show it is not against contagion that the principal effort in tuberculosis prophylaxis must be directed, as far as adults are concerned.

RIO DE JANEIRO

(From Our Regular Correspondent)

Sept. 15, 1925.

Bacterial Structure and Reproduction

Dr. A. Fontes, chief of one of the services in the Oswaldo Cruz Institute, has just published a note on structure and reproduction of bacteria. Microbiologists are rather divided in their conceptions of the bacterial cell: some accept its having a differentiated nucleus, and others favor a diffuse core. When in 1910 Dr. Fontes studied the structure of the tubercle bacillus, he found existing granulations giving rise to other granulations, which in turn had the power of reproduction, through a process of division similar to budding. Fontes concluded that the granulation of the tubercle bacillus was the infecting agent.

He verified his conclusions by filtering caseous pus through a Nordmeyer-Berkefeld apparatus. Guinea-pigs inoculated with this filtrate, and killed after a year, failed to show any tuberculous signs, but showed the presence of embryonic cells having gram-positive granulations. Animals inoculated with material from the organs of these first guinea-pigs, showed tubercle bacilli in gland and lung sections. This proves that infected animals may remain apparently healthy, although harboring latent virus. Fontes' work was confirmed abroad, among others by Kirschenstein, in Riga, in 1922.

In studying the structure of other bacteria, Fontes tends to accept the hypothetic existence of a diffuse nucleus which in certain conditions may develop into a more or less differentiated one. From his point of view, the chromophilic granulations, once liberated by any cause not impairing their vitality, are the starting points of new live elements, which renew the bacterial species.

Coexistence of Normal and Ectopic Pregnancies with Full Term Viable Fetuses

Dr. L. de Araujo has reported to the National Academy of Medicine the case of a patient recently operated on by him at the Santa Casa Maternity. A primipara, aged 29, suffered blood losses up to the third month. The increasing pains in the lower part of the abdomen almost entirely prevented her resting. On reaching the maternity, she was already in labor and had passed water and blood. On palpation, a head was felt, but examination was incomplete because of the pain it caused. The cervix was not dilated. On the morning of the third day another examination was made; the lower uterine segment was distended and thinned, and through its walls fetal sutures and fontanels could be felt. Abdominal inspection showed an ampule-like uterus and at the level of the right iliac fossa, a tumor, which was the cause of the dystocia and suggested a fetal head.

As the cervix remained unrelaxed and the fetus seemed viable, a laparotomy was deemed advisable. A pregnant uterus was found, and behind, another mass, which at first sight looked like a fibroid adherent to the neighboring structures. An attempt at freeing the adhesions was made, but the mass burst open on one side, and an abundance of blood escaped. The uterus was then drawn out and a live but moribund fetus was found. While the operator was trying again to destroy the adhesions a new fetus appeared. This was located in the right tube and was delivered alive and in good condition. The operation was completed by a supravaginal amputation of the uterus and resection of the right tube and ovary. While the patient did well at first, death ensued suddenly on the fifteenth day. The uterine fetus died in convulsions, twenty-four hours after delivery, but the extra-uterine fetus is still alive and doing well. The consensus of opinion was that the case was very uncommon and perhaps unique in medical literature.

First Case of Human Coccidiosis

Drs. C. Pinto and G. Pacheco of the Oswaldo Cruz Institute have just reported the first case of human coccidiosis verified in Brazil. The etiologic agent, *Isospora belli,* described in 1923 by Wenyon, was identified in the patient, a child, aged 4 years. The disease had begun nine months before, with colic, mucous and bloody feces, fever and prostration. The fecal examination showed *Trichuris trichiura* eggs, cysts and rare vegetative forms of *Giardia intestinalis,* vegetative forms of *Trichomonas hominis, Chilomastix mesnili, Endameba histolytica,* and oocysts of *Isospora belli.* In view of this multiple infection, it is hard to determine the pathogenic rôle of *Isospora belli.*

Total Removal of Larynx

Dr. Souza Mendes has exhibited to the Rio de Janeiro Medical and Surgical Society a patient on whom he made a total laryngectomy for cancer. This is the second of these operations performed by him this year, with complete success. The patient was 26 years old, and he was operated on in one sitting and without a previous tracheotomy.

Visit of French Scientists

The Brazilian medical profession feels grateful for the kindness of so many celebrated French medical men in visiting here. Drs. Marchoux of the Pasteur Institute, L. Bernard, Babinski, Vaquez of the Paris Medical School, and G. Dumas of the Sorbonne have lectured at the academy, and the medical school. August 20, Profs. L. Bernard, Babinski and Vaquez were made honorary members of the academy. After their Rio visit, the French physicians will proceed to São Paulo, and thence to Montevideo and Buenos Aires.

NETHERLANDS

(From Our Regular Correspondent)

Sept. 16, 1925.

An International Service of Venereal Prophylaxis

At the Netherlands Congress of Public Health, Dr. De Jong referred to the organization of an international service of venereal prophylaxis for seamen, which was the result of a request from Belgium directed to the International Bureau of Public Health in Paris. The Netherlands have not as yet entered into the compact. Dr. De Jong expressed the desire that, until the Netherlands take part officially in this work, seamen residing temporarily in the ports of Holland might be furnished treatment. At Amsterdam there is already a policlinic that gives gratuitous treatment to sailors. At Rotterdam very little agitation would secure similar service. The speaker expressed the hope that the authorities would soon make the necessary appropriations.

Special Diploma for Doctors of Public Health

In a recent letter, I wrote that the central commission of public health was considering the creation of a special diploma in hygienic medicine for physicians who are planning to take administrative positions that would require a knowledge of social hygiene and public health problems. The special courses would include studies in bacteriology, immunology, epidemiology and prophylaxis, and the hygiene of dwellings. Two three-month periods are proposed, followed by assignment to a post where the candidate would gain practical experience. The bill does not specify details for the organization of such courses, but it would seem that only the medical faculties would be in a position to give the instruction.

The Technic of Nephrectomy

As a means of preventing the fistulas following nephrectomy in renal tuberculosis, Dr. Hustinx recommends complete removal of the kidney and of the ureter up to the point where it enters the bladder. He makes an incision from the pubis to the umbilicus, then curving toward the ninth costal cartilage of the side on which one desires to operate. The peritoneum is detached progressively from the deep aponeurosis of the muscles until the ureter is uncovered. The ureter is followed as far as the renal vein, which is easily accomplished with the patient in the Trendelenburg position. The patient then is placed in the usual position, and the ureter is isolated as far as the kidney, which is easily loosened by this incision. This technic has been employed by the author in other cases of renal or pararenal tumors and in cases of lithiasis, and he has found this approach very favorable.

The Serologic Institute

The new state serologic institute at Utrecht was recently dedicated. During the ceremonies, Professor Aldershoff gave an account of the activities of the institute, which consist in inducing antidiphtheritic immunization by the use of the toxin-antitoxin mixture; immunization against scarlet fever (Dick method) which promises some success; the crusade against asthma, in which Dr. Pondman is engaged, by means of a polyvalent autovaccine; the preparation and study of pertussis vaccines, and the new findings of Calmette and Guérin concerning vaccination against tuberculosis with BCG.

Following the dedicatory address, Minister Aalberse gave the history of the institute, which was founded originally as a private enterprise of Dr. Spronck, before it became the annex, that it now is, to the central laboratory and to the University of Utrecht.

Visit of South American Physicians in the Netherlands

In a study tour organized by the League of Nations, about ten physicians from South America recently visited the public health organizations and institutes in the Netherlands. Dr. Josephus Jitta received them officially and explained the laws governing the organization of public health. He pointed out that the public health services would soon be centralized in a single organization. Dr. Terburgh gave an account of the antismallpox campaign. In spite of opponents of vaccination (who are not very numerous but include a number of agitators and are therefore a social danger), there were only 756 children per million of school age that were not vaccinated. Revaccination, however, is little practiced. It is not compulsory even in the army. In general, Terburgh holds that the antismallpox crusade has failed of its full purpose, for 70 per cent. of the adult population possess only partial immunity.

In the Dutch East Indies, where smallpox was formerly a scourge, vaccination is working wonders. The author explained the system, according to which a European physician trains natives to perform the work of vaccination among the people in their districts. Since the introduction of this method, prophylaxis has extended much more rapidly and the whole population will be revaccinated every ten years. He warned that we must not relax our vigilance because of partial success, for England's recent increased incidence is suggestive of what the result would be.

In Amsterdam, the vistors were interested in the care of emigrants; more particularly, the Lloyd Hotel, an immense establishment organized by the Royal Dutch Lloyd to accommodate the emigrants from central and eastern Europe while they are being examined before embarkation. The emigrants are separated in sections according to the races to which they belong.

The Retirement of Professor Winkler

Prof. Dr. Winkler, professor of neurology and psychiatry at the University of Utrecht, has reached the age limit and has resigned. On the occasion of his retirement, Professor Winkler emphasized that the progress of psychiatry depends on its anatomic and biochemical bases, joined with experimental psychology.

ITALY

(From Our Regular Correspondent)

Sept. 23, 1925.

An Institute of the History of Science

The new institute of the history of science, in Florence, was opened, a few days ago, under the direction of Prof. A. Corsini, a noted fosterer of the history of medicine and secretary of the Società italiana di storia delle scienze. The institute is located in the buildings of the Faculty of Medicine and is under the sponsorship of the rector of the University of Florence, Giulio Chiarugi, professor of normal human anatomy, and of Professor Lustig, dean of the Faculty of Medicine. The object of the new institute is to collect books, pamphlets, objets d'art, armamentarium and whatever else may serve to illustrate the various periods of the history of science, and, more particularly, of medicine, in order that they may be of use to students. There is a reawakened interest in such subjects in Italy. The nucleus of the institute comprises collections of antique surgical instruments; mortars and other instruments of ancient pharmacists; pictures, busts, journals, etc.

Convention on the Abnormal Child

Under the auspices of the Associazione pro infanzia anormale and the Lombardy section of the Lega italiana per l'igiene mentale, a convention was recently held in Milan to promote better assistance for abnormal children. The convention, presided over by Professor Medea, who is the head of these two organizations, was held in the Zaccaria Treves school for abnormal children. The convention recommended that with the aid of suitable organizations the authorities throughout Italy require that the identity of abnormal children be known and that a careful differentiation be made between those who are abnormal and those who are temporarily backward. It advocated likewise special schools for truly abnormal children, with compulsory attendance through the sixteenth year, instead of the fourteenth as at present. The schools should be in charge of teachers who have received modern medicopedagogic training fitting them for such special duties.

Bismuth Salts in the Treatment of Pulmonary Tuberculosis

At a recent session of the Società medico-chirurgica of Pavia, Dr. Bignami reported on his results in the treatment of pulmonary tuberculosis with small doses of bismuth salts administered either hypodermically or by means of inhalations. The author's experiment was impelled by his observation that in certain syphilitic patients with tuberculosis, treatment with bismuth had retarded the tuberculous manifestations. He had noted experimentally also that rabbits treated with bismuth salts show increased resistance to tubercle bacilli. From his observations, which extended over a period of three years, the author, while recognizing that they are insufficient as a basis for decisive conclusions, nevertheless feels that bismuth exerts a favorable action on the course of pulmonary tuberculosis, not only strengthening the resistance of the organism, but also possibly lessening the pathogenic activity of the bacilli.

A Course in Public Health Work to Be Established in Rome

The royal commissioner at Rome, Senator Cremonesi, has arranged with the Instituto italiano di igiene, previdenza e assistenza sociale to establish special courses of instruction in public health work. These courses are intended primarily for employees of the commune of Rome, particularly the instructional corps of the communal schools. By way of experiment, there will be established a course in organization of hygienic-prophylactic services such as exist at present in all progressive countries. To promote interest in the course, the commune has decided to give scholarships and prizes to those who excel in the recitations and written themes of the course.

The First International Congress on Malaria

From October 4 to 6, the first International Congress on Malaria will be held at Rome, at the instance of the Italian government. All the nations of Europe and of North and South America will send delegates; also India, Japan and Turkey. The section on health of the League of Nations will be represented. The topics on the program are: *Anopheles* in relation to malaria; the biology of the parasites; the alkaloids of quinin in relation to malaria therapy; epidemiologic factors and the crusade against malaria; propaganda and statistics.

A Special Course in Colonial Medicine

In the coming November, Bologna will organize a course in colonial medicine open to graduates in medicine and surgery who wish to secure a diploma in that subject. The course will include clinical instruction in colonial diseases, colonial hygiene, protozoology, helminthology, entomology, bacteriology and serology. Theoretical lectures will alternate with laboratory work and demonstrations, the school being supplied with abundant scientific and laboratory material.

VIENNA

(From Our Regular Correspondent)

Sept. 30, 1925.

The Winter Semester in the Medical Department of the University of Vienna

The lectures to be delivered at the University of Vienna, from the middle of October, 1925, up to Easter, 1926, include a number of medical courses. In addition to the regular courses given every year, we note: "The Biologic and Physiologic Aspects of Personality" and "Physiology in Relation to Human Labor," Dr. Allers; "Resuscitation Measures in Apparent Death and Accidents Due to Electricity and Gas," Prof. Dr. Jellinek; "Psychotherapy in Internal Diseases," Dr. Deutsch; "The Bases of the General Medical Theory of Hereditary Transmission," Privatdozent Dr. S. Bondi; "Problems of Child Welfare," Privatdozent Dr. Nobel; "Diagnosis of Constitutional Abnormalities in Children," Dr. Lazar; "Social Aspects in Pediatrics," Dr. Friedjung; "The More Minute Cell Structure of the Cerebral Cortex," Professor Economo; "Psychanalytic Conceptions of Patients," Professor Schilder; "Lectures on Physical Education" and "Reeducation of the Disabled," Professor Spitzy; "Propagation in Relation to the Sexual Life of the Female," Dr. Hofstätter, and "Psychology of Adolescence," Privatdozent Bühler. In the Institute of Criminology, Privatdozent Türkel lectures on "Criminologic Microscopy and Chemistry"; Professor Wasicky on "Forensic Aspects of Toxicology and Examination of the Excrements"; Professor Haberda on "Selected Chapters of Legal Medicine"; Prof. Dr. Oppenheim on "Occupational Injuries of the Skin as Forensic Distinguishing Marks." There are a number of other courses which are more of a technical than a medical nature.

Malpractice and Austrian Law

From time to time, in Austria, suits for alleged malpractice are brought against more or less prominent physicians A strict interpretation of some sections of the antiquated "Constitutio Criminalis Carolina," the law code that was promulgated by Charles V in 1532, might menace the medical profession. The more recent Austrian legislation on the subject deals in three sections with "misdemeanors of physicians" due to "ignorance," "gross negligence" and "violations against the security of life." The provisions, however, are susceptible of so many different interpretations that only popular ignorance of the law prevents physicians from being mulcted more frequently than is now the case. To be sure, it is customary for the courts to impose punishment only for "glaring" ignorance, the penalty being the withdrawal of the right to practice until the physician shall have been reexamined. But in several cases physicians were threatened with suits because operations which they had advised and represented as not being dangerous had resulted fatally, owing to complications. Suits have been brought also for alleged neglect to perform an operation. One physician received a six weeks' jail sentence for having given a midwife a mercuric chlorid tablet, with instructions "to dissolve it in a liter of water," whereupon the midwife allowed the patient to drink the solution that was intended for lavage purposes. Errors of diagnosis, prognosis and judgment do occur, but physicians are human and not omniscient.

In an article signed "Verus," which appeared in a Vienna daily, attention is called to the fact that in 1903 the Austrian minister of justice recommended that opportunity be given during the preliminary examination before the case is brought into open court to discover whether or not a physician is guilty. Even though he is innocent, a physician's reputation is damaged if he is called on to answer a court summons, and often he prefers to "buy his peace" rather than have his name appear in connection with alleged misdemeanors. For these reasons the medical profession demands new legislation which shall explicitly annul the antiquated laws of 1532, 1770 and 1782. A further demand is that, in all actions involving medical problems, physicians shall be accorded decisive influence and authority in determining the guilt or innocence of the accused. This should be effected by the appointment of physicians as temporary judges, in much the same manner as merchants are chosen to function as judges in suits involving technical commercial questions. Furthermore, the law should state explicitly in what kinds of actions expert medical opinion must be sought, for in the past there has been much negligence in this regard. In the *"Aerzteordnung"* (code pertaining to physicians), which is now being drafted, the last mentioned demand has received no consideration, and an attempt is being made to have inserted in the new penal code a section dealing with the matter.

The Seventieth Birthday of Professor Gärtner

Dr. Gustav Gärtner, who, in 1878, was appointed an assistant to Professor Stricker in the newly founded department of experimental pathology, has produced apparatus important in research. The ergostat, the rheostat, the hematocrit, the two-cell bath, the pneumatophore, the tonometer and the methods for the measurement of basal metabolism and nasal respiration are some of the best known of his inventions. Likewise, the treatment of cholera with the infusion of hypertonic sodium chlorid solution was introduced by Gärtner. His reducing method is well known and has brought him great fame. That he was never given a professorial chair was due to his great modesty and unpretentiousness. He still possesses his wonted physical and mental vigor. His seventieth birthday will be celebrated in a festal manner by the various scientific societies and his many personal friends.

The Number of Physicians in Austria

The report of the ministry of public health for 1924 contains statistics on the number of physicians in Austria. In the following enumeration, the first figure represents the number of physicians in the respective towns and cities and the figure in parentheses the number of inhabitants to one physician: Vienna, 4,051 (461); St. Pölten, 27 (1,171); Waidhofen, 5 (1,031); Vienna Neustadt, 43 (859); Amstetten, 37 (2,217); Gauserndorf, 26 (2,374); Mödling, 39 (1,818); Zwettel, 20 (2,318). The rural districts in the vicinity of Vienna had 862 physicians (1,716). Upper Austria had 489 physicians (1,791), with the maximal number of inhabitants (2,565) to one physician in Braunau and the minimal number (762) in Linz. Salzburg had 174 (1,282). The largest number of inhabitants to one physician, in this region, was in Rohrbach, a large district with fifteen physicians (3,346). In Steiermark, a very mountainous region, Graz, a university town, had 461 physicians, or 334 inhabitants to one physician, the smallest number in this section; the largest number was in Weiz, where there were two physicians, or one to 2,842 inhabitants, while the average distribution in this region was one physician to 1,333 inhabitants. In the province of Carinthia, Klagenfurt had sixty-seven physicians, or one to 409 inhabitants; Völkermarkt, sixteen (3,494). The rural districts had 204 physicians (1,817). In Tyrol, Innsbruck (university) with 198 physicians (298) had the largest number of physicians in proportion to the population found anywhere in Austria, but in the whole province there were only 341 physicians (923), for the villages in the mountains are small and do not offer very good prospects for physicians; there being only one physician to from 1,800 to 2,600 inhabitants. The smallest number of physicians proportionately is found in the so-called "New Austria," the rural district that was ceded to Austria by Hungary. Here there is a total of eighty-eight physicians, or one to 3,248 inhabitants. In the whole republic of Austria there were 7,169 practitioners, or one to 912 inhabitants, which is an increase of 150 physicians over last year, which showed one physician to 928 inhabitants.

Marriages

Franklin Howard Pennell, Fostoria, Ohio, to Miss Dorothy Elizabeth McCombs of Bowling Green, September 12.

John Silas Lundy, Rochester, Minn., to Miss Lenore Mittelstadt of Wells, at St. Paul, September 5.

Roland Adcock Slater, Indianapolis, to Miss Mabelle Browning of La Harpe, Ill., September 10.

James J. Morrow, Austin, Minn., to Miss Margaret Alice Till of Davenport, Iowa, September 7.

Theodore Ferdinand Ruther, Effingham, Ill., to Miss Alice Faust of New Orleans, August 18.

James Fulton Percy, Los Angeles, to Mrs. Charles Albert Post of Ventura, Calif., August 28.

Richard F. Sitar, Hopkins, Minn., to Miss Pauline Lewis of Madison, Wis., September 19.

James Alexander Collins to Miss Bessie Rhodes, both of Birmingham, Ala., October 6.

Elmer Lewis Lampe, Bellevue, Iowa, to Miss Agnes Marie Yates of Clinton, August 31.

George Dock, Pasadena, Calif., to Miss Miriam Gould of Boston, October 17.

John J. Burns to Miss Anna McLain, both of Philadelphia, September 8.

Deaths

John Cooke Hirst ⊕ Philadelphia; University of Pennsylvania School of Medicine, 1897; died at his home in Philadelphia, October 4, after a long illness, aged 50 years. He received his earlier education in Lawrenceville and Penn Charter, after which he entered the University of Pennsylvania. Following his graduation in medicine, he studied abroad and then returned to practice, becoming promptly associated with many Philadelphia institutions. He was senior gynecologist and obstetrician in the Philadelphia General Hospital, and associated in similar capacities with St. Agnes, University and Mount Sinai hospitals of Philadelphia. He was also assistant professor of gynecology in the postgraduate medical school of the University of Pennsylvania, and assistant in obstetrics in the medical faculty. He became associated early with the examinations of the National Board of Medical Examiners, and took part frequently in the work of the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association and of special societies. Dr. Hirst was a frequent contributor to the literature of obstetrics, including two textbooks; recently he gave special attention to research on the use of the corpus luteum. His brother, Dr. Barton Cooke Hirst, is professor of obstetrics in the University of Pennsylvania.

William Lowry Copeland ⊕ Chicago; McGill University Faculty of Medicine, Montreal, Que., Canada, 1872; professor of anatomy, Chicago College of Dental Surgery, 1884-1920, and Chicago College of Medicine and Surgery, 1906-1920; formerly professor and head of the department of anatomy at the College of Physicians and Surgeons; on the staff of the Cook County Hospital, 1892; aged 74; died at the West Side Hospital, September 18, of embolism.

George Tucker Harrison, Mount Kisco, N. Y.; University of Virginia Department of Medicine, Charlottesville, Va., 1856; formerly on the staffs of the Misericordia and St. Elizabeth's hospitals, New York, and the New York Infant Asylum; for many years a practitioner in New York; member of the New York Academy of Medicine, and the American Gynecological Society, and of the Medical Society of Virginia; aged 90; died, October 4.

Michael Joseph Halloran ⊕ Worcester, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1880; on the original staff of St. Vincent Hospital and after resigning from the staff continued to act as consulting physician; for many years visiting physician at Holy Cross College; aged 71; died at the Maine General Hospital, Portland, Maine, September 22, of cerebral hemorrhage.

George H. Smith ⊕ Hartford City, Ind.; Illinois Medical College, Chicago, 1903; specialized in ophthalmology, otology, laryngology and rhinology; member Indiana Academy of Ophthalmology and Oto-Laryngology; formerly a councilor of the Sixth District Medical Society and a practitioner in Indianapolis; aged 52; died, September 28, at Newcastle, following a long illness.

Larkin H. Callaway, Nevada, Mo.; American Medical College, St. Louis, 1875, and Beaumont Hospital Medical College, St. Louis, 1887; member of the Missouri State Medical Association, and of the American Psychiatric Association; formerly superintendent of State Hospital No. 3; aged 70; died, October 1, of cerebral hemorrhage.

Florence C. Baier, Minneapolis; Medical Department Hamline University, Minneapolis, 1897; member of the Minnesota State Medical Association; on the staff of the North Dakota Hospital for the Insane, 1898-1900; aged 71; died at the home of her daughter in Aurora, Ill., October 3, of cerebral hemorrhage.

Abiram F. Squire, Newport, R. I.; Medical School of Harvard University, Boston, 1867; member of the Rhode Island Medical Society; past president of the Newport County Medical Society; veteran of the Civil War; aged 79; died at the Newport Hospital, October 4, of cerebral hemorrhage.

Philip Henry Sheridan Vaughan, Yarmouthville, Maine; Bowdoin Medical School, Portland, 1889; formerly superintendent of the Eastern Maine Hospital, Bangor; member of the New England Society of Psychiatry; aged 59; died at the Maine General Hospital, Portland, September 21.

Daniel William McDougald, Minneapolis; Medical Department of Hamline University, Minneapolis, 1902; member of the Minnesota State Medical Association; specialized in ophthalmology, otology, rhinology and laryngology; aged 48; died suddenly of heart disease, September 28.

David Alexander Morrison, Buffalo; State University of Iowa College of Medicine, Iowa City, 1882; member of the Medical Society of the State of New York; formerly on the staffs of the Niagara Hospital and of the Deaconess Hospital; aged 67; died, August 17.

Robert Stanton Wood, Washington, Ind.; Medical College of Indiana, Indianapolis, 1905; member of the Indiana State Medical Association; county coroner; aged 52; died at the Daviess County Hospital, September 25, of injuries received in an automobile accident.

Henry A. Calkins ⊕ Leadville, Colo.; Denver College of Medicine, Denver, 1901; president and formerly secretary of the Lake County Medical Society; on the staff of St. Vincent's Hospital; aged 55; died, September 27, of pneumonia.

Henry Dickson Gold, Frazer, Pa.; Temple University Department of Medicine, Philadelphia, 1905; aged 59; died at the Pennsylvania Hospital for Mental and Nervous Diseases, Philadelphia, September 28.

John T. Ullom, Vanderbilt, Pa.; Jefferson Medical College of Philadelphia, 1870; formerly a practitioner in Waynesburg; aged 78; died at the home of his son in Waynesburg, September 24, of general debility.

Frederick W. Seward ⊕ Goshen, N. Y.; University of Vermont College of Medicine, Burlington, 1866; specialized in neurology; proprietor of the Interpines Sanatorium, where he died, October 1, aged 80.

William E. Bell, Terre Haute, Ind.; Medical College of Ohio, Cincinnati, 1890; consulting surgeon Union Hospital; formerly president Terre Haute Board of Health; aged 59; died, October 6.

Joseph A. Shears, New York; New York University Medical College, 1888; for many years connected with the New York City Health Department; aged 61; died, October 1, of heart disease.

James Madison Welch, Wadley, Ala.; Southern Medical College, Atlanta, Ga., 1892; member of the Medical Association of the State of Alabama; aged 71; died suddenly, September 16.

Ada R. Smith Fuller, Des Moines, Iowa; Medical Department of Drake University, Des Moines, 1895; aged 50; died, September 25, at the Iowa Lutheran Hospital, of heart disease.

Guy L. Zimmerman, Lemasters, Pa.; Baltimore Medical College, Baltimore, 1906; a director of the Peoples Bank; aged 51; died, September 26, following a long illness.

George William Miles, Oneida, N. Y.; Columbus Medical College, Columbus, Ohio, 1879; member of the Medical Society of the State of New York; aged 73; died in September.

Sidney Zell Herbert, Evansville, Ind.; University of Michigan Medican School, Ann Arbor, 1902; aged 45; died, October 1, of injuries received in an automobile accident.

George W. Blanton, Brunswick, Ga.; Atlanta Medical College, Atlanta, 1878; formerly on the staff of Brunswick City Hospital, where he died, September 27, aged 67.

Samuel J. Creswell, Mount Calm, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; aged 63; died in a sanatorium at Waco, September 28.

Tyler DeWitt Jones, Hoboken, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; aged 43; died at a hospital in Waycross, September 25.

Clifton Lambert Alexander, Elberton, Ga.; Emory University School of Medicine, Atlanta, 1916; died, September 22, following a long illness, aged 32.

John C. Bishop, Wilkesville, Ohio; University of Wooster Medical Department, Cleveland, 1869; aged 85; died, August 21, following a long illness.

Worley DeForest Mercer, Columbus, Ohio; Ohio Medical University, Columbus, 1896; aged 58; died, September 29, of pneumonia.

Robert L. Hood, Atlanta, Ga.; Southern Medical College, Atlanta, 1892; aged 63; died at a local sanatorium, September 30.

Stephen I. Brown, Knox, Ind.; Indiana Medical College, Indianapolis, 1875; aged 77; died at LaPorte, October 5.

George L. Crocker, Maroa, Ill.; Rush Medical College, Chicago, 1897; aged 69; died, October 1, of pneumonia.

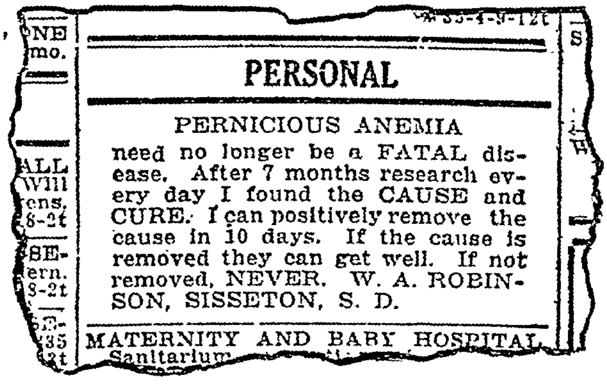
The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

ROBINSON'S PERNICIOUS ANEMIA CURE

One W. A. Robinson of Sisseton, South Dakota, has been exploiting an alleged cure for pernicious anemia during the past three or four years. Original letters written by Robinson show him to be a man without any general education and his statements regarding the alleged cause and cure of pernicious anemia prove him to be utterly ignorant of medicine.

Robinson's story is to the effect that in 1919 he had what the physicians had diagnosed as pernicious anemia and was told that it was unlikely that he would get well. He then set about it to find a cure for his condition, and this he claims to have done. Robinson's theory of the etiology of pernicious anemia is not new. It is to the effect that the condition is caused by intestinal parasites. He calls these parasites "Anemias" and declares that pernicious anemia "is not a disease at all, any more than 'cooties' is a disease." Robinson claims that he kept up his "research" on the cause and cure of pernicious anemia for nearly seven months (!), and then found both the cause and the cure; that he cured himself and two friends before he began putting the thing on the market. Here is Robinson's conception of the cause of pernicious anemia:



PERSONAL

PERNICIOUS ANEMIA

need no longer be a FATAL disease. After 7 months research every day I found the CAUSE and CURE. I can positively remove the cause in 10 days. If the cause is removed they can get well. If not removed, NEVER. W. A. ROBINSON, SISSETON, S. D.

MATERNITY AND BABY HOSPITAL
Sanitarium

Photographic reproduction of one of Robinson's advertisements.

> "Pernicious Anaemia is a case of slowly starving to death, no difference how much they eat. When the food is digested in the stomach the liquid extract of the food passes into the small intestines where it should be taken into the system through tiny tubes to make blood, flesh and strength; but lying in wait are from 300 to 700 Anaemias, many as large as the first joint of your finger. They absorb the extract of the food—They Get Their's First—and the system gets what is left. . . . Some doctors say it is mal-nutrition. I agree with that, but it is no wonder; the system stands no show when a hungry herd of Anaemias get all the nutriment."

It seems further from Robinson's circulars and printed matter that the "Anaemias" "never let go, till they are destroyed," and that in all of his "seven months research and experimenting" he "never found but one true Anaemia, showing they never let go." Then:

> "When I had gotten the right remedy I found 450 in six days, and several hundred that had been fully destroyed. Then I began to get better and in six weeks gained fifteen pounds and could carry two buckets of water, and I never had a relapse; and now, at the age of 66, have not been as well in twenty years. It is impossible for the Anaemias to remain when my remedy is taken. My remedy is perfectly harmless."

When Robinson and his business were first brought to the attention of The Journal the thing had all the earmarks of an insignificant piece of quackery. The man's obvious illiteracy and ignorance made one feel that the public surely could never be greatly harmed by quackery of this type. As time went by, however, it became evident that sufferers from pernicious anemia were being deluded by Robinson, whose quackery, while crude, is not cheap. He charges $30 for a "treatment," which, he claims, will entirely remove the cause of pernicious anemia in twenty-five days. From letters that came in from physicians, it seemed that the main part of Robinson's "cure" was coarse sand.

In April of this year Dr. W. R. Roberts of Cissna Park, Illinois, sent in a "treatment" which one of his patients, suffering from pernicious anemia, had ordered from Robinson. The patient died, and Dr. Roberts wrote: "The end, in my opinion, was hastened by gastric disturbances induced by this treatment." The treatment in this instance consisted of two parts; one, a substance resembling coarse, sharp sand, and the other a green colored liquid. In some instances Robinson apparently sends in the place of the liquid what he calls "liver pills," but in the present case pills do not seem to have been part of the "treatment." The material was turned over to the A. M. A. Chemical Laboratory, with the suggestion that as the thing was an obvious humbug only cursory tests be made. The laboratory reported as follows:

LABORATORY REPORT

"Two bottles of a treatment for pernicious anemia purported to be exploited by W. A. Robinson of Sisseton, S. D., were subjected to a preliminary examination. One bottle contained a substance resembling coarse sand; this it was found to be; namely, sodium and potassium feldspar.

"The second bottle contained a bitter-tasting, green colored liquid with suspended matter. Tests for arsenic, mercury, iron were negative; the amount of ash was less than 0.1 per cent. Alkaloids were not found. A small amount of a substance yielding an emodin reaction was present. The product is probably an aqueous solution of vegetable material (not identified) containing some chlorophyl."

Since this report came from the Laboratory other inquiries regarding this piece of quackery have been received. The most recent is one from Dr. George Dalton of Malden, Missouri. Dr. Dalton reports that on September 8 he was called to see a patient who was suffering from pernicious anemia and had been taking Robinson's nostrum. The sand which the poor sufferer had been swallowing had caused hemorrhages which resulted in the doctor being called in. The patient died September 14.

As Robinson's dangerous fakery is carried on exclusively through the agency of the United States mails, it is to be hoped that the efficient but overworked department that issues fraud orders will get around to Robinson before the quack gets many more victims.

Correspondence

DIATHERMY IN CALCIFIED SUBDELTOID BURSITIS

To the Editor:—The article on "Action of Diathermy in Calcified Subdeltoid Bursitis," by Dr. Joseph F. Harris (The Journal, October 10, p. 1134), purports to prove from one case that diathermy is a curative agent. If Dr. Harris will take the trouble to review roentgenograms of the shoulder showing calcified subdeltoid bursitis, he will find that in a fairly large proportion the calcium disappears without any treatment whatever.

Arthur L. Fisher, M.D., San Francisco.

DIGESTIVE ENZYMES

To the Editor:—A recent report in The Journal indicates that gastro-enterologists in the United States are now using digestive enzymes but little. I stopped using them entirely about 1905. If there is any one disease in which pepsin would be supposed to be indicated it is achylia gastrica. However, I have two cases of this disease of long duration which attest the uselessness of pepsin. One patient, who began treatment in July, 1903, has gone the last twenty years without a dose of pepsin, and the other, who began treatment in January, 1909, has never to my knowledge had a dose of pepsin. Both of these women were in seriously weakened condition when they began treatment with me, but hydrochloric acid, not enzymes, is the drug that has saved their lives and brought them back to health and strength. They must continue its use as long as they live. These cases are of importance both from the therapeutic and from the physiologic standpoint.

George E. Barnes, M.D., Herkimer, M.D.

PERNICIOUS ANEMIA WITH UNUSUALLY LONG REMISSION

To the Editor:—Since the report of a case of pernicious anemia with unusually long remission appeared (The Journal, September 12, p. 824), I have had a communication from the patient's widow which establishes the period of remission as fourteen years. I make this statement in the interest of accuracy.

Will Howard Swan, M.D., Colorado Springs, Colo.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SIR RONALD ROSS

To the Editor:—We have had an inquiry for a poem by Sir Ronald Ross on the discovery of the malaria germ, the first line of which is "This day Almighty God has shown to me a wondrous thing." We have tried to locate this through our indexes and have asked the University of Louisville Medical Library. They have not been able to find it but the physician asking for it thought it was published in The Journal.

Edna J. Grauman, Louisville, Ky.

Answer.—The poem by Sir Ronald Ross in which our correspondent is interested was published in The Journal, Sept. 7, 1907. It reads as follows:

This day relenting God
  Hath placed within my hand
A wondrous thing; and God
  Be praised. At his command

Seeking His secret deeds
  With tears and toiling breath
I find thy cunning seeds,
  O million-murdering Death.

I know this little thing
  A myriad men will save.
O Death, where is thy sting,
  Thy victory, O Grave!

Before Thy feet I fall,
  Lord, who made high my fate;
For in the mighty small
  Is shown the mighty great.

The poem also appears in "Memoirs: With a Full Account of the Great Malaria Problem and Its Solution" by Sir Ronald Ross, published by E. P. Dutton & Co., 681 Fifth Avenue, New York, 1923, $9.

VITAMINS — QUININ IN MALARIA

To the Editor:—1. Is there any contraindication to the use of lime juice as a source of the antiscorbutic vitamin for infants when lemon, tomato and orange juice are unavailable, as sometimes happens in the tropics? 2. Why is the juice of cooked tomatoes used for this and not that of raw tomatoes? 3. What form and dosage of quinin are recommended for malaria prophylaxis in infants, and at what age is it begun?

Myrta M. Wilson-Adams, M.D., Monrovia, Liberia, West Africa.

Answer.—1. It has been found that preserved lime juice is not an efficient antiscorbutic remedy. On the other hand, crude or fresh lime juice is said to be less efficacious than lemon juice. Indeed, experimental evidence goes to show that lemon or orange juice is four times as efficient as lime juice in prophylaxis or treatment of infantile scurvy. It has also been found that 5 c.c. of raw lime juice given daily was unable to protect guinea-pigs from scurvy.

2. The raw tomato or its juice is more efficient as an antiscorbutic. The canned tomato, however, may be used particularly under circumstances in which the raw article is not to be obtained, and it must be conceded that the canned product produces a high degree of antiscorbutic power.

Dried orange juice, combined with a malt sugar, is now being sold by one of the American manufacturers, and experience tends to show that dried orange juice is an efficient prophylactic remedy against scurvy.

3. The value of quinin prophylaxis is doubtful. Krauss and Mitchell, in a recent treatise on malaria in children, say that in very malarious regions it is practically impossible to prevent malarial infection, though it may keep symptoms in abeyance. Of a group that had been given 15 grains of quinin three times weekly for five months and 10 grains daily during the remainder of the year, 43.3 per thousand showed active malarial symptoms in spite of the prophylactic use of quinin. Another group of persons who were exposed to malaria were not given quinin and 45.8 per thousand fell ill with the disease. Quinin prophylaxis was also used among 2,000 coolies, with discouraging results. Stitt thinks that the quinin acts as a slow poison without compensating results. Experience also shows that as soon as the quinin is stopped, very often in less than a week, the symptoms of the disease begin to appear.

In contradistinction to these views, Bass believes that the prophylactic use of quinin should be carefully employed. He advises the following doses: children under 1 year, one-half grain (0.3 gm.) daily; 1 year, 1 grain (0.065 gm.); 2 years, 2 grains (0.13 gm.); 3 and 4 years, 3 grains (0.2 gm.); 5, 6 and 7 years, 4 grains (0.23 gm.); 8, 9 and 10 years, 6 grains (0.4 gm.); 11, 12, 13 and 14 years, 8 grains (0.5 gm.) daily. The doses should be taken at night before retiring, as in the treatment for disinfection of carriers. Bass also says that the disease is prevented as long as the treatment is continued.

TETANUS ANTITOXIN — SCHICK TEST

To the Editor:—1. How much danger is attached to reinjection with tetanus antitoxin at long intervals? Should one hesitate to administer it or attempt desensitization when a suspicious wound is being treated from a few months to several years after a previous prophylactic immunization? 2. How long after an immunizing dose of diphtheria antitoxin is the Schick test of value, and how long after may toxin-antitoxin be given? Please omit my name. M.D.

Answer.—1. As tetanus antitoxin is conveyed in horse serum, there is a possible danger that one injection may sensitize the patient to horse proteins, and on that account it probably is best to desensitize before giving a second injection or series of injections in a given case, even if the interval is a long one.

2. The Schick test becomes of value in determining the questions of susceptibility or immunity in about three to four weeks after an immunizing dose of diphtheria antitoxin, because the passive immunity thus conferred does not last much longer than three weeks or so. Toxin-antitoxin may be given about that time, but need not be given until indicated by a positive Schick reaction.

FEDERAL DEPARTMENT OF HEALTH

To the Editor:—What is the history of the Owen bill for creating a federal department of health? Did it ever pass either branch of Congress? What were the principal objections to legislation creating such a department? M.D.

Answer.—In 1910, Senator Robert L. Owen introduced into the Senate a bill establishing a department of health and for other purposes. It was designed to accomplish that end by bringing into the new department all federal health agencies of the government, except those of the army and the navy. The principles of this bill were promptly endorsed by the House of Delegates in 1910. The bill in a somewhat modified form was again endorsed by the House in 1911. With slight modifications it has been before Congress ever since and was pending as S. 3156 when the Sixty-Eighth Congress expired by limitation on March 4 last. Opposition to this bill has come largely from the usual antimedical groups and to a certain extent from officers or employees of the government who feared that their status might be unfavorably altered. Available records do not permit a statement whether this bill ever passed either house of Congress. The Owen bill as it now stands calls for no extension of federal health function and involves no additional expense except such as is necessary to provide for the appointment of a secretary of health, a commissioner of health, and necessary administrative officers, this increase to be offset by decreases in the expenses of the several departments whose functions are transferred in part to the proposed department of health.

INFLUENCE OF ALLERGY ON COURSE OF TUBERCULOSIS

To the Editor:—An article in the *Nederlandsch Tijdschrift voor Geneeskunde* (**1:** 2672 [June 13] 1923) was indexed in The Journal with this heading, August 22, p. 644. What did the writer have in mind?

M. H., Illinois.

Answer.—Korteweg presents evidence to show that the guinea-pig is less susceptible to tuberculosis than we have heretofore assumed and that man is more susceptible. The misconceptions in the past have been due to the fact that the research workers have not been careful enough to discriminate between primary and repeated infection; that is, whether the subject was in a state of allergy or not. He says it is interesting to go over the reports in the older archives and, by the light of the new knowledge as to allergy, clear up the conflicting findings. One worker injected the tubercle bacilli in the ear, for example, and described the blood-borne focus in the lung that had developed at once and directly as an actual primary lesion. Another worker injected the bacilli in the bladder, and then examined the blood-borne focus in the lung after an interval of weeks or months. This focus was not a primary lesion, but had developed after a condition of allergy had been realized. Naturally the two lesions differed widely.

DIATHERMY FOR PROSTATITIS

To the Editor:—In The Journal, October 10, you state that "diathermy furnishes excellent results in cases of chronic prostatitis. It is applied by placing a large indifferent electrode on the abdomen and a prostatic electrode in the rectum."

The technic at the Mount Sinai Hospital advised by Dr. H. Wolf, chief of physiotherapy, is as follows: The patient is seated on a chair. The large indifferent electrode is placed on the abdomen and held in place by means of an elastic bandage. A smaller electrode, triangular and padded with absorbent cotton which has been dipped in salt solution, is placed under the *perineum.*

The advantages of this procedure are that,—there is less danger of burning the patient and the heat of the smaller electrode will penetrate not only the prostate proper but the adjacent structures, as the seminal vesicles, while in the direct method, one cannot be sure of reaching the diseased part and at any rate he cannot treat more than one lobe at the time. That the heat travels up into the rectum is shown by the raised *rectal temperature (from 102 to 103 F.) taken immediately after* treatment.

Benjamin Damsky, M.D., New York.

PAN-SECRETIN — POSTGRADUATE STUDY

To the Editor:—1. Is there any clinical or experimental evidence that *any enzyme or gland product, such as "Pan-Secretin"* of the much advertised Harrower Company, or others, taken by mouth, has any value in replacing or supplementing insulin in the treatment of diabetes? 2. Does the American Medical Association have any organized information available on postgraduate work in medical subjects and clinical opportunities, American and foreign? Please omit my name.

M.D.

Answer.—1. There is no evidence that any preparation taken by mouth has been shown to be an efficient method of obtaining the effects of insulin. A discussion of "Pan-Secretin" appeared in Queries and Minor Notes, The Journal, March 10, 1923, page 717.

2. A folder on this topic is supplied by the Council on Medical Education and Hospitals of the American Medical Association.

CURE OF SYPHILIS

To the Editor:—1. Given a patient with syphilis and a positive Wassermann reaction, is it safe to conclude that this patient is cured, following a course of treatment including from ten to twenty arsphenamin injections and two or three courses of mercury, if a Wassermann negative report is obtained on two or three occasions during the following three or four months? 2. My personal opinion is that a syphilitic patient with a positive Wassermann reaction has not received adequate treatment unless several courses of arsenic, bismuth and mercury have been given covering a two year period and a two year observation period, with Wassermann tests during this last period, and that Wassermann tests taken early are fallacious and only tend to undertreatment if negative. Please answer this under Queries and Minor Notes and please omit name.

M.D., Pennsylvania.

Answer.—1. No.

2. A sound position.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 10-11. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville.

Connecticut: New Haven, Nov. 10. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: Wilmington, Dec. 8-9-10. Pres. Med. Coun., Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

Maine: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: Baltimore, Dec. 8-11. Sec., Reg. Bd., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore, Sec., Homeo. Bd., Dr. J. S. Garrison, 517 Old Orchard Rd., Baltimore.

Massachusetts: Boston, Nov. 10-12. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

Missouri: Kansas City, Oct. 27-30. Sec., Dr. James Stewart, Jefferson City.

Nevada: Carson City, Nov. 2. Sec., Dr. Simeon L. Lee, Carson City.

North Carolina: Raleigh, Nov. 25 (Endorsement of Credentials only). Sec., Dr. Kemp P. B. Bonner, Morehead City.

Ohio: Columbus, Dec. 2-4. Sec, Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

Philippine Islands: Manila, Nov. 10. Sec., Dr. Jose V. Gloria, 686 Rizal Ave., Manila.

South Carolina: Columbia, Nov. 10. Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

Texas: Dallas, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-919 Mercantile Bank Bldg., Dallas.

Virginia: Richmond, Dec. 8 11. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

OPENING OF VANDERBILT UNIVERSITY MEDICAL BUILDINGS

Celebration of Vanderbilt University's fiftieth anniversary was held, October 15-18, and was featured by formal opening of the university's $3,000,000 medical school. Many health officers and physicians from other states were among those inspecting the new school, the hospital and school of nursing.

Drs. Simon Flexner and William H. Welch addressed the medical conference at the semicentennial celebration. G. Canby Robinson, dean of the Vanderbilt Medical School, presided.

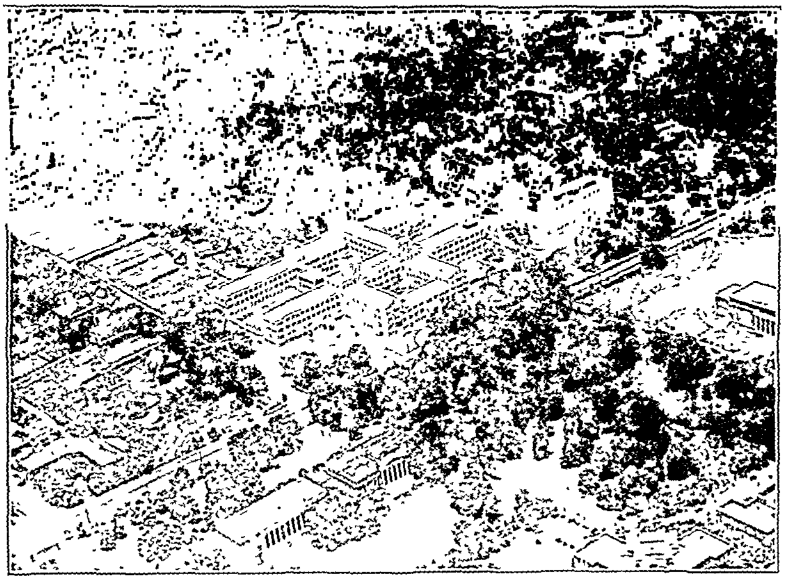


Fig. 1.—Aeroplane view of Vanderbilt University Medical School. To the right above is the nurses' home; below and in the foreground are other university buildings.

Praise of the new school was linked with an appeal that the new facilities be used for the greatest good of the public. Both speakers also urged closer cooperation between public health officers and physicians. Dr. Welch said in part:

"There is nothing more disgusting to me than the antagonism that has sprung up between public health officials and practitioners. For the moment the matter is serious, although it is only a temporary episode and will pass away."

Dr. Flexner asserted that "such a preparation as this to serve science [referring to the new medical plant] is an event of national or even international importance." He compared nineteenth century methods of the medical profession with those of today. In that era, he said, learning of medicine consisted largely in study of texts, whereas modern schools have developed the laboratory method to its fullest extent. He pointed to Vanderbilt's ample facilities for extension of its research.

"With the opening of such schools as this," he continued, "the question is, How can we serve best?"

Mr. George M. Vincent, president of the Rockefeller Foundation, reviewed progress of the medical profession and linked Vanderbilt's school with those of Johns Hopkins, Washington University and the large eastern institutions. He urged that the medical department seek to link its work with that of other schools, and to correlate its service with the needs of the public. "By sympathetic comradeship with the medical profession," said Dr. Vincent, "by social intercourse, by public address, the men and women of this institution may create a sympathetic appreciation of the aims and achievements as well as the baffling difficulties of modern medicine. . . . The times call for a service of this sort from the leaders of scientific medicine. The prevalence of active and well financed campaigns against animal experimentation and vaccination strikes at the foundation of medical research and public health procedure. In certain quarters the very existence of disease is denied. . . . On the leaders of medical science who are not engaged in private practice and on intelligent laymen must fall the burden of informed and courageous support of science and the scientific method as vital factors of individual and social welfare."

Delegates to the semicentennial were entertained at dinner in the medical buildings, and inspected the entire plant.

California June Examination

Dr. Charles B. Pinkham, secretary of the California Board of Medical Examiners, reports the written examination, held at Los Angeles, June 15-18, and San Francisco, July 6-9, 1925. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 90 candidates examined 80 passed and 10 failed. Ninety-nine candidates were licensed by reciprocity. Fifteen candidates were licensed by endorsement of credentials. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Medical Evangelists	(1924)	76.6, (1925) 76, 77.7, 78.8, 79.1, 80.4, 80.6, 80 6, 80.7, 80.9. 82, 82.1, 82.2, 82.2, 82.2, 82.7, 82.9, 83, 83.8, 84, 84.2, 84.2, 84.3, 85, 85, 85, 85.1, 85.2, 85.3, 85.3, 85.7, 86.1, 87.6, 87.7, 87.8, 88, 88.3, 88.8, 88.9, 89.8, 91.9, 92.4
Univ. of Calif. Med. School	(1925)	77.2, 80.6, 82.2, 84, 86.7, 87.8, 89.8, 90.8
Univ. of Colorado School of Medicine	(1920)	81
George Washington Medical School, Washington, D. C.	(1911)	83
Chicago Coll. of Med. and Surgery	(1914)	75.9
Illinois Medical College	(1910)	75.6
Rush Medical College	(1923) 85.3, (1924) 89.2, (1925)	81.1
Univ. of Illinois College of Medicine	(1913)	78
Drake Univ. Coll. of Med., Des Moines	(1913)	79.6
State Univ. of Iowa Coll. of Medicine	(1924)	75
Harvard University	(1924) 90.6, (1925)	80.9, 84.7
University of Minnesota Medical School	(1925)	82.1
Univ. of Neb. Coll. of Med.	(1924) 75.4, (1925)	76.7
Hahnemann Med. College and Hospital of Philadelphia	(1925)	75
University of Pennsylvania School of Medicine	(1924)	80.7, 82.6
University of Manitoba Faculty of Medicine	(1925)	83.1
Queen's University Faculty of Medicine	(1918)	83.9
University of Toronto Faculty of Med.	(1903) 83.2, (1923)	80.3
Licentiate of the Royal College of Surgeons, England	(1922)	85.4
University of Paris, France	(1900)*	70.4†
University of Budapest, Hungary	(1921)*	75
Faculty of Medicine, Guatemala	(1898)*	71.1‡
University of Moscow, Russia	(1916)*	75.3
University of Saratov, Russia	(1916)*	73.1§
University of Edinburgh, Scotland	(1912)*	76.4

FAILED

College	Year Grad	Per Cent.
Howard University School of Medicine	(1922)	63 1
Rush Medical College	(1913)	72.3
University of Michigan Medical School	(1923)	72 8
Vanderbilt University, School of Medicine	(1924)	68.1
University of Groningen, Holland	(1923)*	70 1
University of Budapest, Hungary	(1922)*	51.7
University of Rome, Italy	(1916)*	55
University of Kharkov, Russia	(1898)*	58 2
University of St. Vladimira, Kief, Russia	(1913)*	60 6
University of Geneva, Switzerland	(1910)*	71.9

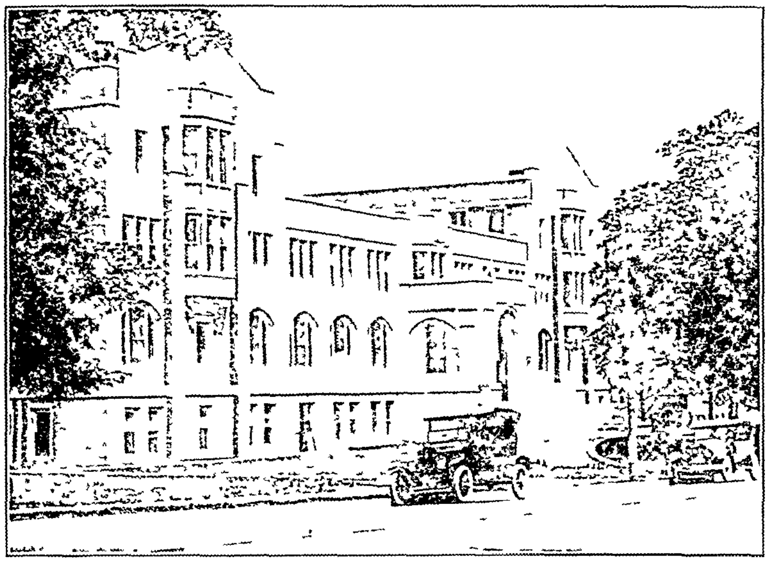


Fig. 2.—Style of structure of Vanderbilt University Medical School.

LICENSED BY RECIPROCITY

College	Year Grad	Reciprocity with
College of Physicians and Surgeons, Los Angeles	(1916)	Arizona
University of California	(1906)	Montana
University of Southern California, College of Med	(1903)	Washington
Gross Medical College	(1895)	Utah
Yale University School of Medicine	(1900)	Connecticut
George Washington University Medical School	(1921)	Dist Colum
Atlanta School of Medicine	(1913)	Terr Haw.
Bennet Medical College, Chicago	(1912)	Nebraska
Chicago Medical School	(1923)	Illinois
Chicago College of Medicine and Surgery	(1914)	Terr. Haw.
College of Physicians and Surgeons, Chicago	(1904) (1905) South Dakota, (1907) Illinois	Indiana
Hahnemann Medical College and Hospital, Chicago	(1913)	Kansas
Northwestern University Medical School	(1908)	Illinois
Northwestern University Woman's Medical School	(1900)	Iowa
University of Illinois College of Medicine	(1913)	Illinois
Rush Medical College	(1890), (1903), (1917) (1919) Montana, South Dakota	Illinois
College of Physicians and Surgeons, Keokuk	(1894)	Iowa
Iowa College of Physicians and Surgeons	(1897)	Iowa
State University of Iowa College of Medicine	(1905)	Iowa
Medical College of Indiana	(1904)	Indiana
University of Louisville School of Medicine	(1915)	Kentucky
Tulane University of Louisiana School of Medicine	(1916)	Texas
Medical School of Maine	(1904)	Maine
Baltimore Medical College	(1902) Maryland, (1914)	New York
College of Physicians and Surgeons, Baltimore	(1883) (1897) Maryland, Iowa	Penna
Johns Hopkins University	(1907), (1908), (1916)	Maryland
University of Maryland School of Medicine	(1916)	W. Virginia
Harvard University	(1914) Ohio, (1922) Iowa, (1923)	New York
Detroit College of Medicine	(1896)	Nevada
Detroit Homeopathic College	(1909)	Michigan
Michigan College of Medicine and Surgery	(1905)	Michigan
University of Michigan Medical School	(1892) Ohio, (1903)	N Carolina
Univ. of Minnesota Med School	(1903), (1908), (1909, 2)	Minnesota
St. Louis College of Physicians and Surgeons	(1892), (1907)	Illinois
St Louis University School of Med	(1906) Illinois, (1918)	Missouri
University Medical College of Kansas City	(1901)	Montana
John A Creighton Medical College	(1909), (1913) (1910) Montana	Nebraska
Lincoln Medical College	(1911), (1915)	Nebraska
Albany Medical College	(1914)	New York
Columbia University College of Phys. and Surgs	(1899)	New York
Long Island College Hospital	(1911)	New York
New York Homeopathic Med. Coll. and Flower Hosp	(1912)	Maine
University and Bellevue Hospital Medical College	(1906)	New York
University of Buffalo	(1913)	New York
Leonard Medical School	(1904)	Virginia
Medical College of Ohio	(1895)	Ohio
Ohio Medical University, Columbus	(1906)	Ohio
Ohio State University College of Medicine	(1917)	Ohio
Starling Medical College	(1892)	Ohio
Eclectic Medical Institute, Cincinnati	(1903)	Wyoming
University of Oklahoma School of Medicine	(1923)	New York, Okla
University of Oregon Med School	(1915), (1921), (1923, 2)	Oregon
Willamette University, Salem	(1908)	Oregon
Jefferson Medical College of Philadelphia	(1916)	New York
Medico-Chirurgical College of Philadelphia	(1902), (1914) (1902) Utah	Penna.
University of Pennsylvania	*(1903) New York, (1879)*	*Kansas*
University of Pittsburgh School of Medicine	(1916)	Penna.
Woman's Med Coll of Pennsylvania	(1894) Indiana, (1924)	New York
Medical College of the State of South Carolina	(1912)	Mass.
Chattanooga Medical College	(1906)	Tennessee
Meharry Medical College	(1911)	Illinois
University of Texas	(1922)	Texas
University of Vermont College of Medicine	(1902), (1912)	Vermont
University of Virginia	(1897)	Dist Colum
McGill University Faculty of Med.	(1900)	Montana
Trinity Medical College, Toronto.	(1897)	N. Dakota
University of Toronto Faculty of Medicine	(1909) Michigan, (1911)	Iowa

ENDORSEMENT OF CREDENTIALS

College	Year Grad	Endorsement with
Yale University School of Medicine	(1919)	U S P H S.
Columbian University, Washington, D. C.	(1902)	U. S. Army
Atlanta College of Physicians and Surgeons	(1900)	U. S. Army
University of Illinois College of Medicine	(1914)	U. S Army
Johns Hopkins University	(1906) U S Navy, (1916)	U. S. Army
University of Maryland School of Medicine	(1899)	U S Army
National University of Arts and Sciences	(1915)	U. S. Navy
Columbia University College of Physicians and Surgeons	(1906)	U S. Army
Long Island College Hospital	(1881)	U S. Navy
Medical College of Ohio	(1906)	U.S.P.H S.
Jefferson Medical College of Philadelphia	(1895)	U S Navy
University of Pennsylvania	(1905)	U S Navy
Medical College of Virginia	(1884)	U S P H S
University of Virginia	(1907)	U S Army

* Graduation not verified by the American Medical Association.

† Thirteen per cent. allowed for years of practice

‡ Twenty three per cent allowed for years of practice.

§ Six per cent allowed for years of practice.

Book Notices

Practical Clinical Psychiatry for Students and Practitioners By Edward A. Strecker, A.M., M D, Medical Director, Pennsylvania Hospital, Department for Mental and Nervous Diseases, and Franklin G Ebaugh, A B, M D, Professor of Psychiatry, University of Colorado Cloth Price, $4 net. Pp 375, with 24 illustrations. Philadelphia: P. Blakiston's Son & Co, 1925

This handbook is prepared to meet the needs of students as an introduction to more extensive works on psychiatry, and of practitioners as a review or incentive to further study of this great group of mentally sick and mentally defective persons The importance of this study is stressed by the authors as epitomized in the statement. "Of 7,000 infants born each day in the United States, about 270, or one in twenty-six, eventually becomes incapacitated by abnormalities of the mind" The discussion of etiology, diagnosis, prognosis and treatment is admirably presented, and the classification of mental diseases follows that in common use in institutions. For the beginner the mastery of this classification will be found a severe task, and yet some such scheme must be used as an introduction to the presentation of the various subjects. The authors have adopted the case method in the presentation of their subjects, a method that appeals particularly to students and is highly interesting to practitioners, and is probably the best of all methods. The case records are clearly set forth, and they are discussed and summarized in an instructive manner. The section on psychoses leaves little to be desired. Perhaps more illustrations would add to the interest of the text. In the discussion of the psychoneuroses, the authors are possibly limited by their institutional training and opportunities, so that the twilight cases and minor cases that bulk so largely in general practice are not adequately presented. While the authors do not follow the Freudian psychanalytic methods, and indeed indicate that in some instances they are distinctly detrimental to the patient, nevertheless they say so much about them that the student is likely to be misled as to their value, both in the understanding of the neuroses and in their attempts at management. The chapter on constitutional psychopathic inferiority is well written and should be in the hands of every practitioner. The mental deficiency classes again seem to be presented from the limited experience of institutional physicians. A well written glossary is of distinct assistance to the beginner, and to some degree makes the book available for the nonmedical reader. The difficult task of compressing a large amount of material within the limits of a small volume is, on the whole, admirably accomplished.

HANDBUCH DER HALS-NASEN OHREN-HEILKUNDE. Mit Einschluss der Grenzgebiete. Herausgegeben von A. Denker und O. Kahler. Erster Band. Die Krankheiten der Luftwege und der Mundhohle I. Erster Teil. Anatomie. Entwicklungsgeschichte Physiologie. Untersuchungsmethoden. Paper. Price, 87 marks. Pp. 1068, with illustrations. Berlin: Julius Springer, 1925.

This large volume is the first of nine that are to cover the subject of the ear, nose and throat, together with subjects on the borderline of otolaryngology and allied topics. Volumes 1 to 5 inclusive will cover the respiratory tract and oral cavity; Volumes 6, 7 and 8, otology, and the final volume will discuss diseases of the esophagus and the neck. The work begins with the anatomy and embryology, together with the comparative anatomy and histology of the nose, pharynx, mouth, larynx and bronchial tree. The next section covers the physiology of those structures with a most complete chapter on olfactometry by Zwaardemaker, and one on the voice and speech by Nadoleczny. The third section on pathology and therapy includes a comprehensive discussion of direct and indirect laryngoscopy by Seiffert. One appendix deals with the radiography of the nose, accessory sinuses, larynx, trachea and bronchi; another gives a short account of immunology. The articles are contributed by distinguished specialists and workers in the various subjects of otolaryngology. The numerous topics are presented in a detailed manner, and most of the chapters are accompanied by a comprehensive bibliography. The subject matter is further elucidated by excellent illustrations and diagrams. Judging from the first volume, this work will be of an encyclopedic character and will no doubt serve as a standard of reference for years to come. It is impossible to discuss in detail the many features; the character of the contributors of the many chapters is a guarantee of the authoritativeness of the statements made, and opinions expressed by the various authors. Not since the publication of Heymann's Handbuch of Laryngology, published in 1898, have we had so complete a system bringing the subjects up to date, as that presented by this work of Denker and Kahler. The publishers have also done their part, as shown in the excellent paper, type and illustrations that they have used.

THE FATS. By J. B. Leathes, M.A., M.B., F.R.S., Professor of Physiology in the University of Sheffield, and H. S. Raper, C.B.E., M.B., D.Sc., Brackenbury Professor of Physiology in the University of Manchester. Second edition. Paper. Price, $4.50. Pp. 242. New York: Longmans, Green & Co., 1925.

This is a new edition of one of the valuable series of Monographs on Biochemistry, issued fifteen years ago by the senior author. It partially parallels the monograph by Maclean on "Lecithin and Allied Substances" in the same series, but it is devoted primarily to a consideration of the simple fats. It covers not only the chemical properties of the fats and fatty acids, the methods of extraction and estimation, and their physical properties, but also their physiology, fully half the book being devoted to the latter topic. The reader will find a brief statement of what is known at present about the fats expressed in readable fashion, especially in respect to the biologic functions of the fats. Of particular interest to the physician is the chapter on the part played by the fats on the life of the cell, for here is pointed out clearly the importance of fats and lipoids for normal function. The newer ideas of the arrangement of molecules in surface films are utilized in explaining the properties of cell membranes. One notes with regret that the author adheres to a nomenclature for the fatty substances which is not in harmony either with the spelling used by Maclean in the same series of monographs or with the usage of the American Chemical Society. It will be a glad day for editors when the biochemists can agree on a nomenclature and spelling of the important group of substances that are so well described in this monograph.

THE CEREBRO-SPINAL FLUID IN CLINICAL DIAGNOSIS. By J. Godwin Greenfield, M.D., B.Sc., M.R.C.P., Pathologist to the National Hospital for the Paralyzed and Epileptic, and E. Arnold Carmichael, M.B., Ch B., Resident Medical Officer, National Hospital for the Paralyzed and Epileptic. Cloth. Price, 12 shillings net. Pp. 272. London: Macmillan & Co, 1925.

This book can be recommended to both laboratory workers and practitioners. It is a clear and concise statement of most of the essentials in the methods of examining spinal fluid. It also has an excellent discussion of the spinal fluid findings in the various diseases in which the central nervous system is involved or lumbar punctures are likely to be performed. The significance of the various spinal fluid findings is well discussed. An excellent table of contents and an index make the book easily usable. An extensive bibliography is given which gives a true index of the scope of the volume, showing that the American literature has been neglected to some extent. For example, important articles on meningitis sympathica and on spinal fluid sugar are neglected. Nevertheless, this book can be recommended for a place in the physician's library.

Medicolegal

No Recovery for Services by Unlicensed Person—Note

(Lyon v. Leet (Iowa), 202 N. W. R. 881)

The Supreme Court of Iowa, in affirming a judgment dismissing the petition in this action on a promissory note which the defendant gave for treatment in 1917 by the plaintiff, says that the plaintiff was then engaged in the practice of chiropractic, maintained an office therefor, and publicly professed to cure or heal diseases. The services were rendered some four years before the enactment of the law regulating the practice of chiropractic in Iowa. The plaintiff, in that he was a person who publicly professed to cure or heal, came within the prohibition of Section 2579 of the code of 1897, which in part provides that any person shall be held as practicing medicine "who shall publicly profess to cure or heal." This court has held that one so publicly professing to cure or heal without a license so to do violates said statute, and is subject to the penalty provided for such violation. It is the general and uniform holding of the courts that one who publicly professes to cure or heal, or hold himself out as a *physician, without a license to practice as such, cannot recover* compensation for his services rendered in such capacity. It is obvious that the plaintiff in this case violated the statute in publicly professing to heal or cure without a license so to do. The contract to compensate him for services so illegally rendered was void. The note in suit having been given as compensation for said services was void in the hands of the plaintiff, the original payee thereof.

Temperamental Eccentricities—"Irrational"—Evidence

(Lee v. State (Okla.), 234 Pac. R. 654)

The Criminal Court of Appeals of Oklahoma, in affirming a judgment of conviction of defendant Lee of murder, says that the only claim of error urged in the defendant's brief was that the trial court excluded and withdrew from the jury testimony offered in some instances and given in others, which testimony tended to show that the defendant at the time of the homicide was insane, but no attempt was made to establish the defendant's insanity by expert witnesses, or those skilled as alienists, or persons trained and competent to diagnose or analyze diseases of the mind. Where testimony tending to establish insanity is offered, the trial judge must determine in the first instance whether the proffered testimony reasonably justifies an inference of insanity. It follows, therefore, that if such evidence has been admitted, and the facts so shown do not justify an inference of insanity, the court may withdraw the testimony from the consideration of the jury. If, however, the evidence in any slight degree tends to support the plea of insanity, it should be admitted. If there is any competent testimony tending to establish insanity, the weight of such testimony is for the jury. Opinion evidence on insanity must be shown to be based on facts submitted as a foundation for that opinion. Mere conclusions of the witness, based on observation, without a showing of fact from which such conclusions may logically be drawn, are insufficient. That being true, it would seem that erroneous conclusions not warranted by the facts, may be excluded.

It has been held that temperamental eccentricities of mind and conduct, alone, are not evidences of insanity. A man may do the most extraordinary things; he may recklessly squander his money; his conduct may be the subject of ridicule; he may be addicted to sudden bursts of passion and of harsh treatment toward those he should treat with tenderness; his deportment on a particular occasion may be an outrage on decency and propriety. All this, if it be the result of eccentricity of character, or of depraved taste, or an unfortunate temper, and does not proceed from a permanent disorganization of the mental faculties, will not support a plea of insanity.

The opinion of a nonexpert witness that a person is irrational, based on observations of this character, is a conclusion merely, not warranted by the facts. Most persons have some temperamental peculiarities of thought and action that to others seem queer. The term "irrational" is an elastic term, one that may convey one idea to one person and an entirely different idea to another. "Irrational" may mean unreasonable, foolish, absurd, and a person in such sense may be irrational, and still not be, in any legal sense, insane. If it could be shown as a defense in every homicide case that the perpetrator at some period of his life acted queer, unreasonable or absurd, that defense could be interposed and relied on in all homicide cases.

To establish a legal defense on the ground of insanity, there must be a showing that at the time of the commission of the deed the person accused was laboring under such a defect of reasoning, from some disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know, that he did not know that what he was doing was wrong. Idiosyncrasies, peculiarities or unreasonable conduct may be a symptom of insanity when these are due to some disease of the mind and when it is shown that at some period of the man's life he was not possessed of such traits.

Disability "Permanent" Notwithstanding a Recovery

(Penn Mut. Life Ins. Co. v. Milton (Ga.), 127 S. E. R. 140)

The Supreme Court of Georgia, in answering questions certified to it by the court of appeals, says that a policy of insurance provided that if the insured should furnish proof that he "has become wholly disabled by bodily injury or disease, so that he is and thereby will be permanently and continuously unable to engage in any occupation whatever for remuneration or profit, and that such disability has existed continuously for not less than sixty days prior to the furnishing of proof," thereupon the company would grant certain benefits. Did the language "permanently and continuously" mean that the total disability must last forever before the insured would be entitled to the benefits provided in the policy? "Permanent" is the antithesis of "temporary." The word "permanent" does not always mean forever or lasting forever. The meaning of that word is to be construed according to its nature and in its relation to the subject matter of the contract. The words "permanently and continuously," standing alone, would mean that the total disability must be a lasting one; but when these words were taken in connection with other language used in the several provisions of this insurance policy, the fair construction of these words was, not that the total disability should last or exist forever, but that a disability which existed continuously for no less than sixty days prior to the furnishing of proof was, within the meaning of the policy, a "permanent disability."

A provision, following the one stated above, to the effect that in such case the insurance company would waive the payment of the premiums which thereafter might become due under this policy "during the continuance of the said total disability," carried an implication that the insurer contemplated that the disability might terminate, in which event the waiver of the payment of premiums would come to an end. Again, a provision that monthly payments of $50 would be made "during the continuance of said total disability of the insured and prior to the maturity of this policy" clearly indicated that the insurer meant that the total disability, on proof of which it would grant the benefits named, was not one which might last during the entire life of the insured, but one which might end prior to his death.

So the supreme court is of the opinion that under the terms of this policy a total disability which lasted for sixteen months, and from which the insured had recovered, was a "permanent disability" within the meaning of the provisions of the policy.

Evidence from Necropsies Made Without Notice

(Lowe v. People (Colo.), 234 Pac. R. 169)

The Supreme Court of Colorado says that in this homicide case, in which the body of the deceased was taken to Illinois for burial and then exhumed and a necropsy made, the disclosures of the necropsy were evidenced by the testimony of the physician who performed it and that of other witnesses there present, by photographs taken during its progress, and by that portion of the skull of the deceased showing a fracture. All this, counsel for the defendant insisted, should have been excluded, because the defendant was given no notice that such a proceeding was contemplated, and had no legal representative in attendance. Authorities were cited which advised such representation, which said that distinguished writers on medical jurisprudence hold that evidence of such necropsies will be excluded if "taken flagrantly ex parte" (from, or in the interest of, one side only); that all the circumstances surrounding such a transaction should be inquired into; and that under certain circumstances such evidence should be accompanied with cautionary instructions. But none of those authorities supported this assignment of error, and that which cited the opinion of writers on medical jurisprudence disagreed with their conclusion, and added:

> "Not only has the practice been to receive the testimony of experts who have made ex parte investigations, but, in our opinion, it is entirely proper that the testimony should be allowed to go to the jury, whose duty it is to determine the weight to be accorded to it."—Rogers on Expert Testimony (Ed. 2), Sec. 14, p. 35.

The Supreme Court of Colorado believes that this is the correct rule. Once the contrary is established, no logical halting place can be discerned short of declaring that at all important steps in the people's investigation and preparation for trial the defendant shall be represented. Furthermore, this court rejects the suggestion that, if admitted, such evidence should be accompanied by cautionary instructions as being, in ordinary cases, an improper invasion of the province of the jury.

Society Proceedings

COMING MEETINGS

American College of Surgeons, Philadelphia, Oct. 26-30. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.
Central States Pediatric Society, Chicago, November 6-7. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.
District of Columbia, Medical Society of, Washington, D. C., Dec. 2. Dr. C. B. Conklin, 500 Medical Science Bldg., Washington, D. C., Sec'y.
Philippine Islands Medical Association, Manila, Dec. 16-19. Dr. Isabelo Concepcion, College of Medicine and Surgery, Manila, Secretary.
Porto Rico, Medical Association of, Coami, Dec. 14-15. Dr. R. M. Suarez, Box 314, Santurce, Secretary.
Radiological Society of North America, Cleveland, Dec. 7-11. Dr. Robert J. May, St. Luke's Hospital, Cleveland, Secretary.
Southern Medical [illegible] November 9-12. Mr. C. P. Loranz, Empire [illegible] Secretary.
Southern Surgical [illegible] .y., Dec. 15-17. Dr. Hubert A. Royster, 423 [illegible] N. C., Secretary.
Western Surgical Association, Wichita, Kan., Dec. 18-19. Dr. Harry P. Ritchie, Lowry Building, St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

36: 1-176 (Sept. 15) 1925

Interpretation of Recorded Arterial Anomalies of Human Pelvis and Thigh. H. D. Senior, New York.—p. 1.
Hair in Relation to Homology and Phylogeny. C. H. Danforth, Stanford University, Calif.—p. 47.
Prepubertal and Postpubertal Oogenesis in White Rat, Mus Norvegicus Albinus. M. H. Cowperthwaite, St. Louis.—p. 69.
*Autoplastic and Homoplastic Parathyroid Transplantation. W. W. Swingle and J. S. Nicholas, Pittsburgh.—p. 91.
*Mitochondria. IX. Bacterial Nature. I. E. Wallin, Denver.—p. 131.
Pancreatic Bladder. E. A. Boyden, Boston.—p. 151.

Parathyroid Transplantation.—It is the belief of Swingle and Nicholas, based on experimental findings in cats, that many of the reported cases of successful homoplastic parathyroid transplantation in man, i. e., successful in the sense that the tetany was permanently cured, are due not to permanent survival of the graft, but to a purely temporary effect produced by absorption of the graft and its hormone which tided the individual over a critical period of a few days until the functionally deranged glands of the individual, or accessory parathyroids, could assert their activity.

Bacterial Nature of Mitochondria.—From the results of new experiments the conclusions arrived at by Wallin from previous investigations, namely, that mitochrondria are bacterial organisms symbiotically combined with the cells of all higher organisms, appear to be unconditionally confirmed. Mitochondria are highly sensitive micro-organisms which respond with pleomorphisms to changes in their environment. Symbosis is not a biologic curiosity as such, but represents the expression of a fundamental biologic principle, "symbionticism," which finds its most complete expression in the relationship represented by mitochondria in the cell. The functions and source of mitochondria, as well as their full significance in relation to the organic world, remain for future investigations to determine.

American Journal of Obstetrics and Gynecology, St. Louis

10: 313-460 (Sept.) 1925

Uterine Endoscopy; Endometroscopy with Aid of Uterine Insufflation. I. C. Rubin, New York.—p. 313.
*Improvements in Operative Treatment of Uterine Retrodisplacement. H. S. Crossen, St. Louis.—p. 327.
*Solid Teratomata of Ovary; Two Cases. W. T. Black, Memphis, Tenn.—p. 345.
*Use of Zinc Chlorid in Gynecology. J. C. Masson, Rochester, Minn., and H. O. Foucar, London, Ont.—p. 355.
Some Unusual Vaginal Fistulae. H. R. Spencer, London, Eng.—p. 365.
*Present Status of Intravenous Use of Mercurochrome. E. B. Piper, Philadelphia.—p. 371.
Pelvic Lesions as Contributing Factor in Chronic Cystic Mastitis. C. J. Miller, New Orleans.—p. 375.
Elusive Ulcer of Bladder. F. E. Keene, Philadelphia.—p. 380.
Analysis of One Hundred and Fifty-Two Cases of Ectopic Gestation. W. B. Hendry, Toronto, Ont.—p. 386.
Pus Tube. H. A. Royster, Raleigh, N. C.—p. 392.
*Sedimentation Test in Gynecology. J. L. Baer and R. A. Reis, Chicago.—p. 397.
Occupational Diseases in Women. B. Friedlander, Detroit.—p. 403.

Treatment of Uterine Displacement.—Crossen emphasizes the importance of the study of the pathologic conditions present in each pelvis, and the selection of the operative method best adapted to these conditions. It is such study and selective treatment, he says, that promises most advance in the effective handling of uterine retrodisplacement.

Teratomas of Ovary.—Black urges that a uniform classification be adopted. A satisfactory classification is cystic and solid teratomas. Solid teratomas are rare and unusually malignant. The histogenesis of teratomas is not understood. For embryologic and physiologic reasons the blastomere theory is more comprehensible. Parthenogenetic development has been demonstrated in some of the lower forms of life, but not in the human. There are no pathognomonic symptoms. The prognosis is grave. Conservatism should be observed in the young when the covering membrane is intact, and there is no evidence of malignancy. In older women, if there is a suspicion of malignancy, a radical operation should be performed.

Use of Zinc Chlorid in Gynecology.—The thirty cases in which zinc chlorid was used in the Mayo Clinic were selected from 1,492 cases in which surgery was advised for some pathologic condition of the uterus. In 416 cases, dilatation and curettage were done, in 471 cases, hysterectomies were done, in seventy-five cases myomectomies were done, and in 500 cases radium was used. Experience with the method leads Masson and Foucar to believe that it has a very limited field; *it is probably not applicable in more than 2 per cent.* of uterine cases. However, in cases in which the treatment is especially indicated, satisfactory results are usually obtained. The chief disadvantage is the lack of any very accurate means of dosage. The advantages of the procedure are its simplicity and the fact that the endometrium can be destroyed without injury to the ovaries. A major operation can be avoided in certain borderline cases. Should this treatment prove unsatisfactory, hysterectomy can still be performed.

Intravenous Use of Mercurochrome.—Piper is not an ardent advocate of this treatment because it is not unattended by danger. Its use in puerperal septicemia per se is most discouraging, though there have been some good results. In spite of various investigators who contend that the penetrability of some synthetic preparation will eventually solve this problem, Piper is of the opinion that there is some other, at present unknown, factor, which must first be determined before blood-stream infection may be eradicated successfully. No intravenous medication will avail without common sense surgery.

Sedimentation Test in Gynecology.—Baer and Reis present the results of a study of 192 sedimentation tests carried out in 100 gynecologic cases. The sedimentation test is useful in determining the presence or absence of infection in the body. With pathologic conditions of the pelvis, a negative sedimentation test, i. e., a sedimentation time over two hours, conclusively rules out pelvic infection. The rate of sedimentation is directly proportional to the virulence of the infection. The test is a further aid for determining the safe time for operation. The sedimentation test seems a more delicate prognostic index, good or bad, than either the leukocyte or temperature curve.

American Journal of Pathology, Chicago

1: 445-546 (Sept.) 1925

*Intranuclear Inclusions in Visceral Disease. W. C. Von Glahn and A. M. Pappenheimer, New York.—p. 445.
*Congenital Heart Disease with Partial Situs Inversus, Absence of Inferior Vena Cava, and Other Anomalies. A. J Miller, Boston.—p. 467.
Progressive Alcoholic Cirrhosis; Four Cases. E. M. Hall and W. Ophuls, San Francisco.—p. 477.
Focal Tuberculin Hypersensitiveness in Infected Organ Previous to General Sensitization. F. W. Stewart, Boston.—p. 495.
Gross and Histologic Changes in Edema of Paraphenylenediamine. M. L. Tainter and E. M. Hall, San Francisco.—p. 503
*Mechanical Irritation as Etiologic Factor of Cancer. N M Alter, Denver.—p. 511.
*Neuroblastoma of Intestine. S. A. Ritter, New York. p. 519

Intranuclear Inclusions in Visceral Disease.—The presence of intranuclear bodies with specific tinctorial properties has been widely accepted as indicative of infection with a virus having special affinity for tissues of neural or ectodermal origin. Von Glahn and Pappenheimer present morphologic evidence that similar bodies may be found in lesions of internal organs, and bring forward for consideration the possibility that viruses of this type may localize in tissues other than skin and central nervous system.

Situs Inversus and Heart Anomaly.—The case presented by Miller may be summarized as: congenital heart disease, comprising a patent foramen primum and secundum, patent pars membranacea septi, one atrioventricular valve empting into the left ventricle, misplaced ventricular septum, both aortae arising from the left ventricle, hypertrophy of the left ventricle and right atrium; anomalous vessels comprising absence of inferior vena cava with the renal and common iliac veins emptying into the azygos vein; absence of the transverse portion of the left innominate vein which empties into the coronary sinus; a common stem for the right subclavian and both common carotid arteries; transposition of the aortae, persistent ductus arteriosus, and both coronary arteries arising from a common stem; situs inversus of liver, gallbladder, hilum of liver, esophagus, stomach, duodenum, pancreas and spleen; accessory pancreatic duct and spleens.

Irritation as Cause of Cancer.—The case of carcinoma of the sigmoid reported by Alter appears to present a striking example of mechanical irritation as an etiologic factor in the histogenesis of cancer. The cancer originated where the head of the polyp caused friction of long duration.

Neuroblastoma of Intestine.—Two cases of intestinal neoplasm are reported by Ritter. They are grouped with the neuroblastomas because of their histologic characteristics. In both instances the tumors arose in persons past middle age. Metastases were found only in the adjacent mesenteric lymph nodes. The observations indicate a new and hitherto undescribed site for primary neuroblastomas. So far as can be ascertained, no similar cases have been reported in the literature.

American Journal of Public Health, Albany, N. Y.

15: 757-846 (Sept.) 1925

*Public Health Laboratories. I. V. Hiscock and M. S. Hiscock, New Haven, Conn.—p. 757.
Sun Worshipping in Pennsylvania. J. C. Funk, Harrisburg.—p. 764.
Significance of Tuberculin Test in Pasteurized Milk Supply. J. H. Shrader, Baltimore.—p. 767.
*Automatic Faucet Possible Vector of Infection. I. C. Hall and J. U. Wing, Ithaca, N. Y.—p. 770.
*Use of Hemolyzed Specimens in Kahn Test. P. L. Hendrick and M. K. Lowe, Lansing, Mich.—p. 772.
*Vital Capacity of Children Infested with Hookworm. F. L. Roberts, Trenton, Tenn.—p. 774.
Rupp Method for Detection of Chlorin in Milk. J. Y. Keister, Washington, D. C.—p. 781.
*Cost of Preschool Health Service. J. C. Gebhart, N. Y.—p. 784.

Public Health Laboratories.—The Hiscocks found that public health laboratory service is well developed in the majority of the 100 largest cities of the United States. The scope of laboratory operations is apparently more uniform than the methods of record keeping. The importance of research is generally recognized by laboratory directors, but in nearly 80 per cent. of the laboratories special studies of this character cannot be undertaken because of lack of adequate funds and a sufficient corps of trained workers. The average number of examinations performed in seventy-eight cities was 78 per thousand population, 77 per cent. being of a diagnostic character. A study of the work of several first-class laboratories indicates, however, that from 100 to 125 examinations per thousand population may be expected from such a laboratory, organized on a full-time basis, except in a few cases where extensive-research-problems are under investigation. The cost of laboratory examinations exclusive of research varies considerably, but averages 51 cents. The cost per capita for laboratory services ranges from less than 1 cent to 13 cents, but averages 4 cents. Under present conditions, from 4 to 9 cents per capita are needed in most cities for the maintainence of a first-class public health laboratory, providing for research as well as for a wide range of bacteriologic and chemical examinations. The attitude of local physicians toward the laboratory is reported as favorable or cooperative in most cases.

Automatic Faucet Vector of Infection.—Hall and Wing call attention to a possible danger in a type of automatic faucet or tumbler filler, often used in restaurants and cafeterias. It consists of a rubber covered cross bar against which the lips of the glass are pressed, thereby releasing a flow of water into the glass. The removal of the glass stops the flow of water. If only clean glasses were used there would be no objection. But one often observes a customer swallowing the contents of his or her glass at the fountain and refilling or coming back from the table for more. It is evident that fresh saliva from the lips of a used glass may be conveyed directly to the next one placed in position and the frequency with which such an apparatus may be used even in a small establishment suggests that infectious diseases may be so transmitted.

Use of Hemolyzed Serum in Kahn Test.—Kendrick and Lowe conclude from data presented that the results with hemolyzed specimens in the Kahn precipitation tests are reliable.

Vital Capacity of Hookworm Infested Children.—This research by Roberts shows that hookworm infestation does not materially decrease the vital capacity of the child population between 6 and 18 years of age when this population is considered as a whole.

Cost of Preschool Health Service.—The experience of the Mulberry Health Center of New York City organized and maintained by the Association for Improving the Condition of the Poor, is reported on by Gebhart. The center has developed an economic and efficient community program for reaching the preschool child which will appeal to other communities facing the same problem. The conduct of the preschool drive has demonstrated that the health center, a community health venture, may very readily become the agency to enlist the interest, secure the cooperation and coordinate the efforts of all organizations working in the district for the advancement of the welfare of the preschool child. The per capita cost ($1.75) for the group which had all defects corrected without follow-up is the lowest. The group reporting all defects corrected with the assistance of the field nurses was $3.33, while the per capita cost for the group reporting no defects corrected was nearly as high ($3.16).

American Journal of Roentgenology and Radium Therapy, New York

14: 207-290 (Sept.) 1925

Anatomic Abnormalities of Colon. II. Low Cecum. J. L. Kantor, New York.—p. 207.
Roentgen-Ray Aspect of Empyema in Children. J. R. Carty and C. Liebman, Boston.—p. 215.
Healed Miliary Tuberculosis of Lung. W. S. Middleton, Madison, Wis. —p. 218.
Effects of Radium Emanation on Crown Gall Tissue. M. Levine, New York.—p. 221.
*Influence of Ultraviolet Radiation on Takes and Growth of Transplantable Rat and Mouse Carcinomata in Albino Rats and Mice. K. Sugiura and S. R. Benedict, New York.—p. 234.
Roentgen Rays; Induced Sterility; Production of Genetic Modifications. L. H. Snyder, Raleigh, N. C.—p. 241.
*Roentgen-Ray Treatment of Chronic Cough in Children. M. K. Fisher, Philadelphia.—p. 244.
Experimental Study of Markings Seen in Roentgenograms of Lungs of Normal Dogs. W. J. Marquis, Rochester, Minn.—p. 247.
Metastatic Manifestation in Spine of Hodgkin's Granuloma. N. H. Robin, New York.—p. 251.
Treatment of Bone Sarcoma by Toxins, Radiations, Amputation or Resection. J. C. Bloodgood, Baltimore, Md.—p. 253.

Effect of Ultraviolet Radiation on Transplanted Carcinoma.—In vitro experiments made by Sugiura and Benedict indicate that the proliferating capacity of Flexner-Jobling rat carcinoma was stopped by the radiation in comparatively short exposures. This destructive action appears to be due to the selective absorption of the radiation by the cancer cells. The results of irradiation of a malignant mass at a depth in the animal body by ultraviolet radiation applied externally may be summarized as follows: (*a*) The development of small tumors is checked by severe doses; (*b*) there is an increased rate of growth of malignant tumors after inadequate irradiation of small tumors, and (*c*) large tumors are seldom beneficially affected by the irradiation. Radiation from a quartz mecury arc lamp does not confer resistance on rats and mice to transplanted cancer.

Roentgenotherapy of Chronic Cough.—The class of children in which roentgen-ray irradiation seems of distinct therapeutic service in the treatment of cough are summarized by Fisher as follows: The children from 2 to 9 years of age—rarely older—and in only an occasional instance younger: they are usually healthy looking, well nourished and without any distinctive physical signs in the chest. Occasionally, a few râles may be heard, but usually auscultation and percussion yield no information of any detectable intrathoracic pathologic change. Yet in all the cases there is a history of longstanding cough, very often harassing and persisting even during sleep. The cough is in most instances nonproductive. Occasionally some glairy mucus is expelled. Some attacks are paroxysmal in character and may simulate bronchial asthma from which it can usually be differentiated by the lack of dyspnea, the accompanying breast heaving and rapid respiration. The longer duration—some cases may be of several years' duration—will serve to distinguish it from whooping cough. Clinically, these children more closely resemble a nonproductive chronic bronchitis than any other clinical entity. The results from roentgen-ray therapy have proved highly gratifying. Complete cessation of the cough is obtained in practically every instance.

Annals of Otology, Rhinology and Laryngology, St. Louis

34: 677-1012 (Sept.) 1925

Three Cases of Laryngeal Spasm Associated with Intracranial Hemorrhage in New-Born. D. Munro, Boston.—p. 677.
Headache; Medical Aspects. R. I. Lee, Boston.—p. 682.
Id. Significance of Pressure in Causation of Headache. J. B. Ayer, Boston.—p. 689.
Id. Cranial Neuralgias; Endocrine Aspects. C. H. Lawrence, Boston.—p. 694.
Id. Referred Pains; Dental Aspects. G. H. Wright, Boston.—p. 700.
Id. Ophthalmologic Aspects. W. B. Lancaster, Boston.—p. 706.
Id. Rhinologic Aspect; Cranial Neuralgias. D. C. Greene, Boston.—p. 715.
Teaching Methods. H. P. Mosher, Boston.—p. 720.
Nonsurgical Treatment of Nose and Throat Diseases. P. G. Goldsmith, Toronto, Can.—p. 727.
Nonsurgical Treatment of Ear, Nose and Throat Diseases. D. H. Walker, Boston.—p. 744.
Newer Methods of Intravenous Therapy in Septicemias of Otitic Origin. C. T. Porter, Boston.—p. 749.
Influence of Climate in Nonsurgical Treatment of Ear, Nose and Throat Infections. F. P. Emerson, Boston.—p. 753.
Relation of Diet to Nonsurgical Treatment of Diseases of Ear Nose and Throat. D. C. Jarvis, Barre, Vt.—p. 756.
Roentgen-Ray Therapy in Nonsurgical Treatment of Ear, Nose and Throat Diseases. D. C. Jarvis, Barre, Vt.—p. 760.
Universal Coupling for Irrigating Cannulae in Otolaryngology. L. M. Hurd, New York.—p. 767.
Foot Valve for Suction Apparatus; Device to Increase Its Efficiency. L. M. Hurd, New York.—p. 769.
Bronchoscopic Double Point Grasping Staple Forceps. G. Tucker, Philadelphia.—p. 772.
Retrograde Laryngoscope. G. Tucker, Philadelphia.—p. 774.
Sound Production. C. A. White, Boston.—p. 776.
Electrical Transmission of Sound. F. S. Dellenbaugh, Jr., Boston.—p. 781.
Relation of Nose and Throat to Endocrine Disturbances. E. A. Looper, Baltimore.—p. 785.
Studies on Nasopharynx. M. F. McCarthy, Cincinnati.—p. 800.
Nasal Calculi. F. W. Bailey, Cedar Rapids, Iowa.—p. 814.
Mechanical Problem of Bronchoscopic Removal of Pin from Right Upper Bronchus Under Fluoroscopy. I. D. Kelley, Jr., St. Louis.—p. 819.
Radiotherapy for Chronic Tonsillitis. J. W. Babcock, New York.—p. 836.
Functional Vertigo. G. E. Winter, Jackson, Mich.—p. 850.
Acute Ethmoiditis with Rupture into Orbit. A. C. Jones, Boise, Iowa.—p. 860.
Four Cases of Mastoiditis Where Operation Was Too Long Delayed. C. J. Swan, Chicago.—p. 868.
Schaefer-Galton Whistle. R. Sonnenschein, Chicago.—p. 877.
Dyestuff Antiseptics in Rhinology. R. A. Fenton, Portland, Ore.—p. 881.
Speech Complications Involved in Certain Types of Inadequate Palate, Especially Congenital Short Palate. E. L. Kenyon, Chicago.—p. 887.
Pathologic Findings in Head During Avitaminosis. L. P. Doyle, Lafayette, Ind.—p. 901.
Plastic Surgery; Correction of Deformities of Nose and About Orbit. J. P. de River, San Francisco.—p. 904.
Headaches; Nasal Aspect. R. H. Skillern, Philadelphia.—p. 917.
Ear Polypi in Acute Otitis Media. E. M. Seydell, Wichita, Kan.—p. 925.
Chemotherapy in Otitis Media. E. M. Schwartz, New York.—p. 932.
Abscess of Gasserian Ganglion Complicating Mastoidectomy for Acute Suppurative Mastoiditis; Death; Necropsy. C. Smith, Spokane, Wash.—p. 938.
Black Hairy Tongue (Lingua Nigra Pilosa); Case. C. H. Christoph, Chicago.—p. 949.

Boston Medical and Surgical Journal

193: 583-616 (Sept. 24) 1925

*Control of Gaseous Metabolism Apparatus. F. G. Benedict, Boston.—p. 583.
*Echinococcus Cyst of Spleen. D. Boyd, Boston.—p. 591.

Control of Metabolism Apparatus.—The extensive use of gaseous metabolism technics makes control of the various forms of apparatus imperative. Benedict says that this is best accomplished by developing in the air current a production of carbon dioxid and an abstraction of oxygen approximately equivalent to that produced by a man at rest. The combustion of known amounts of pure ethyl alcohol in a suitable burner, a combustion chamber, and a ventilating device make such controls possible. With the mechanicochemical device of Carpenter and Fox (a modification of which is described) alcohol can be introduced at any desired rate, the normal respiratory movements of a human subject can be simulated, the efficiency of valves can be tested, and both open — and closed — circuit respiration apparatus, including respiration chambers of any size and the various forms of gas analysis apparatus, can be controlled.

Echinococcus Cyst of Spleen.—In the case described by Boyd the diagnosis remained obscure because the patient had never lived on a farm and denied having ever had any contact with dogs or any animals as pets. The patient was known to have borne the splenic tumor for thirty years, during which time she had surprisingly few symptoms.

California and Western Medicine, San Francisco

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Importance of Prognosis in Some Acute Abdominal Surgical Conditions. R. E. Skeel, Los Angeles.—p. 1144.
Factors Influencing Morbidity and Mortality of Exophthalmic Goiter. J. H. Shephard, San Jose.—p. 1146.
Pathologic Conditions of Tongue. H. Morrow and L. Taussig, San Francisco.—p. 1149.
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Treatment of Chronic Arthritis. L. W. Ely, San Francisco.—p. 1157.
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Operative Treatment of Abnormalities of Fifth Lumbar Vertebra. A. E. Gallant, C. B. Bennett, Berkeley, and S. N. Jacobs, San Francisco.—p. 1162.
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Intracranial Hypertension and Serous Meningitis. E. W. Twitchell, San Francisco.—p. 1170.
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Endocrinology, Los Angeles

9: 181-264 (May-June) 1925

*Evaluation of Organotherapy. L. G. Rowntree, Rochester, Minn.—p. 181.
Circulatory Disturbances in Diseases of Glands of Internal Secretion. J. H. Means, Boston.—p. 192.
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*Studies on Vigor. III. Effect of Ovarian Extract Feeding on Activity of Ovariectomized White Rats. E. P. Durrant, Columbus, Ohio.—p. 221.
*Case of Heterogenitalism. J. McD. McKinney, New York.—p. 229.
Effect of Single Doses of Thyroid on Fowls. M. Zavodovski, Moscow.—p. 232.

Evaluation of Organotherapy.—Rowntree says that in organotherapy human frailty looms large. Unfortunately, it must be admitted that in no other branch of medicine has its retarding and pernicious influence been more apparent than in the treatment of diseases of the glands of internal secretion. But the outlook in organotherapy is most hopeful. Success in its limited and legitimate field has been striking, in fact, little short of miraculous, and so encouraging that the field is now ardently exploited, both legitimately in the search for the elucidation of disease, and criminally by those who squeeze gold out of human heartaches. If we are to protect the public against unseasoned and immature conclusions, we must depend on reliable information only. Information concerning standard drugs can be obtained from the United States Pharmacopeia. New drugs of promise, introduced in an ethical manner, are accepted almost without delay by the Council on Pharmacy and Chemistry of the American Medical Association, and are listed and described in one of its annual publications, "New and Nonofficial Remedies." Old and new ethical drugs, which are useful and reliable, are described in a small book, "Useful Drugs," also published by the Council. The most flagrant offenders are exposed in the columns of The Journal of the American Medical Association under the heading, "Propaganda for Reform," under "The Bureau of Information."

Effect of Ovarian Extract on Ovariectomized Rats.—In an experiment made by Durant with eight doubly ovariectomized and seven litter control white rats, the daily feeding of glycerin extract of whole pig ovary for a period of three weeks had no effect on the voluntary activity of the ovariectomized animals. Thrice daily feeding of large doses was likewise ineffective. In view of the proved adequacy of the method used to detect the influence of ovarian hormone, Durrant feels that these experiments cast further doubt on the efficacy of ovarian preparations administered by mouth.

Heterogenitalism.—The case of a boy, aged 16, is described by McKinney showing mental and behavioristic retardation associated with a feminine contour and breast development of the adolescent female type. The penis was well developed and the testes descended, though soft. No abnormality could be discerned in the formation of the generative system, with the exception of the soft testes. Rectal examination revealed nothing abnormal.

Illinois Medical Journal, Oak Park

48: 169-252 (Sept.) 1925

Chronic Arthritis. L. W. Ely, San Francisco.—p. 190.
Principles in Plastic Surgery About Head and Neck. J. C. Beck, Chicago.—p. 194.
Medical Lien. E. D. Levisohn, Chicago.—p. 203.
History Taking of Chronic Gastro-Intestinal Disease. W. Goldie, Toronto.—p. 204.
Determination of Retinal Blood Pressure. J. E. Lebensohn, Chicago.—p. 212.
Hematuria from Traumatic Ruptured Kidney. E. C. Kelly, Peoria.—p. 215.
*Treatment of Pertussis by Roentgen Ray. J. H. Hess, Chicago.—p. 215.
Fundus Oculi in Tryparsamide Treatment of General Paralysis of Insane. J. H. Roth, Kankakee.—p. 320.
Institutionalization of Practice of Medicine. J. H. Mitchell, Chicago.—p. 224.
Feeding Normal Infants. F. E. Inks, Princeton.—p. 229.
Preventive Surgery. F. D. Moore, Chicago.—p. 233.
Essentials of Balanced Diet. N. C. Iknayan, Charleston.—p. 237.
Apprenticeships in Medical Education. L. L. Ely, Chicago.—p. 241.
*Encysted Surgical Sponge: Case. T. P. Foley, Chicago.—p. 243.
Migraine with Pronounced Abdominal Crisis. W. A. Brams, Chicago.—p. 244.
Three Months' Amnesia Following Moonshine Whiskey Debauch. B. Lemchen, Chicago.—p. 246.

Roentgen-Ray Treatment of Pertussis.—In Hess' opinion, excessive exposure of young children to the roentgen ray is dangerous. Therefore, the neighboring organs should be protected and only the minimum number of exposures necessary for relief are to be given. The results, both immediate and remote, of roentgen-ray treatment in whooping cough should be given further study before the method is recommended for general use.

Encysted Surgical Sponge.—In the course of a necropsy on an adult female a tumor was seen in the left iliac fossa firmly adherent to the omentum above and by a tag of omentum to the peritoneum below. The growth was the size of a golf ball and the capsule was smooth, except at the places of adherence. On opening the capsule, which was 5 mm. in thickness, the content of the cyst was seen to be a surgical gauze sponge firmly compressed and encysted by the omentum. In the clinical history which accompanied the body an operation was mentioned, but the time was not given. Whether or not symptoms ever occurred as a result of the condition, Foley says, could not be determined from the history.

Journal of General Physiology, Baltimore

JACQUES LOEB MEMORIAL VOLUME

8: 1-183 (Sept. 18) 1925

*Chromosomes of Parthenogenetic Frogs and Tadpoles. C. L. Parmenter, Philadelphia.—p. 1.
Excretion of Carbon Dioxid by Frog Nerve. G. H. Parker, Cambridge, Mass.—p. 21.
Theory of Permeability of Membranes for Electrolytes. L. Michaelis, Nagoya, Japan.—p. 33.
Protein Films on Collodion Membranes. D. I. Hitchcock, New York.—p. 61.
Studies on Enzyme Action. XXXIII. Lipase Actions of Extracts of Whole Rat at Different Ages. K. G. Falk, H. M. Noyes and K. Sugiura, New York.—p. 75.
Total Luminous Efficiency of Luminous Bacteria. E. N. Harvey, Princeton, N. J.—p. 89.
Androlethal Factors in Genothera. H. de Vries, Lunteren, Holland.—p. 109.
Metabolism of Normal and Malignant Cells. J. B. Murphy and J. A. Hawkins, New York.—p. 115.
Is Living Protoplasm Permeable to Ions? W. J. V. Osterhout, New York.—p. 131.
Accumulation of Dye in Nitella. M. Irwin, Cambridge, Mass.—p. 147.
Action of Alkalies on Peptides and on Ketopiperazines. P. A. Levene and M. H. Pfaltz, New York.—p. 183.

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Physiologic Ontogeny. A. Chicken Embryos. II. Catabolism, Chemical Changes in Fertile Eggs During Incubation. H. A. Murray, Jr., New York.—p. 1.
Id. III. Weight and Growth Rate as Functions of Age. H. A. Murray, Jr., New York.—p. 39.
Temperature Characteristic for Locomotor Activity in Tent Caterpillars. W. J. Crozier and T. B. Stier, New Brunswick, N. J.—p. 49.
Effect of Roentgen Ray on Irritability of Muscles in Frog. I. Kushner, New York.—p. 55.
Comparison of Bone Growth in Length with Bone Growth in Weight. F. S. Hammett, Philadelphia.—p. 63.
Electro-Endosmosis Through Mammalian Serous Membranes. II. Hydrogen Ion Reversal Points with Acetate and with Citrate-Phosphate Buffers. S. Mudd, New York.—p. 73.
Influence of Intensity of Light on Rate of Growth and Duration of Life of Drosphila. J. H. Northrop, New York.—p. 81.
Inactivation of Trypsin by Roentgen Ray. H. Clark and J. H. Northrop, New York.—p. 87.
Consequences of Theory of Membrane Equilibria. D. I. Hitchock, New York.—p. 97.
Microspectra. I. Absorption Spectrum of Euglena. L. G. M. Baas-Becking and P. A. Ross, Stanford University, Calif.—p. 111.
Temperature and Mechanism of Locomotion in Parmamecium. O. Glaser, Amherst, Mass.—p. 115.

Study of Chromosomes.—Parmenter presents cytologic observations on Loeb's parthenogenetic frog material, with considerations on the mechanism by which the diploid number and both sexes may be produced. Both sexes of adults and tadpoles are present. The chromosome number is diploid and probably twenty-six in both sexes. Sex chromosomes cannot be distinguished. The chromosome numbers observed by other authors in parthenogenetic frog material are haploid, diploid, and variable. Their significance is considered. The mechanism producing the diploid number, based on European observations, appears to be a doubling of the haploid number at some time after the second polar body is given off. Overripeness may be a factor in producing both sexes of parthenogenetic frogs and tadpoles. Genetic data indicate that the normal male is digametic and that there are differences of potency between male and female factors for sex which vary in frogs of the two races and in strains within the race. These differences have been interpreted by Witschi as forming a series of multiple allelomorphs.

Journal of Infectious Diseases, Chicago

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*Diplococcus in Measles. Measles Skin Reaction. R. Tunnicliff, Chicago.—p. 193.
Protective Substance in Antipneumococcic Serum. I. L. D. Felton, Boston.—p. 199.
Quantitative Changes in Blood Sugar and in Blood Lactic Acid in Canine Anaphylaxis. M. McCullough and F. I. O'Neill, Stanford University, Calif.—p. 225.
Quantitative Changes in Tissue Glycogen, Blood Sugar, Plasma, Inorganic Phosphates and in Blood Lactic Acid in Canine Histamin Shock. E. K. Chambers and K. W. Thompson, Stanford University, Calif.—p. 229.
Classification of Spore-Free Gram-Negative Aerobic Rods. R. G. Perkins, Cleveland.—p. 232.
*Extracts of Normal Tissues in Experimental Tuberculosis. R. S. Austin, Cincinnati.—p. 256.

yield no information of any detectable intrathoracic pathologic change. Yet in all the cases there is a history of longstanding cough, very often harassing and persisting even during sleep. The cough is in most instances nonproductive. Occasionally some glairy mucus is expelled. Some attacks are paroxysmal in character and may simulate bronchial asthma from which it can usually be differentiated by the lack of dyspnea, the accompanying breast heaving and rapid respiration. The longer duration—some cases may be of several years' duration—will serve to distinguish it from whooping cough. Clinically, these children more closely resemble a nonproductive chronic bronchitis than any other clinical entity. The results from roentgen-ray therapy have proved highly gratifying. Complete cessation of the cough is obtained in practically every instance.

Annals of Otology, Rhinology and Laryngology, St. Louis

34: 677-1012 (Sept.) 1925

Three Cases of Laryngeal Spasm Associated with Intracranial Hemorrhage in New-Born. D. Munro, Boston.—p. 677.
Headache; Medical Aspects. R. I. Lee, Boston.—p. 682.
Id. Significance of Pressure in Causation of Headache. J. B. Ayer, Boston.—p. 689.
Id. Cranial Neuralgias; Endocrine Aspects. C. H. Lawrence, Boston. —p. 694.
Id. Referred Pains; Dental Aspects. G. H. Wright, Boston.—p. 700.
Id. Ophthalmologic Aspects. W. B. Lancaster, Boston.—p. 706.
Id. Rhinologic Aspect; Cranial Neuralgias. D. C. Greene, Boston.—p. 715.
Teaching Methods. H. P. Mosher, Boston.—p. 720.
Nonsurgical Treatment of Nose and Throat Diseases. P. G. Goldsmith, Toronto, Can.—p. 727.
Nonsurgical Treatment of Ear, Nose and Throat Diseases. D. H. Walker, Boston.—p. 744.
Newer Methods of Intravenous Therapy in Septicemias of Otitic Origin. C. T. Porter, Boston.—p. 749.
Influence of Climate in Nonsurgical Treatment of Ear, Nose and Throat Infections. F. P. Emerson, Boston.—p. 753.
Relation of Diet to Nonsurgical Treatment of Diseases of Ear Nose and Throat. D. C. Jarvis, Barre, Vt.—p. 756.
Roentgen-Ray Therapy in Nonsurgical Treatment of Ear, Nose and Throat Diseases. D. C. Jarvis, Barre, Vt.—p. 760.
Universal Coupling for Irrigating Cannulae in Otolaryngology. L. M. Hurd, New York.—p. 767.
Foot Valve for Suction Apparatus; Device to Increase Its Efficiency. L. M. Hurd, New York.—p. 769.
Bronchoscopic Double Point Grasping Staple Forceps. G. Tucker, Philadelphia.—p. 772.
Retrograde Laryngoscope. G. Tucker, Philadelphia.—p. 774.
Sound Production. C. A. White, Boston.—p. 776.
Electrical Transmission of Sound. F. S. Dellenbaugh, Jr., Boston.—p. 781.
Relation of Nose and Throat to Endocrine Disturbances. E. A. Looper, Baltimore.—p. 785.
Studies on Nasopharynx. M. F. McCarthy, Cincinnati.—p. 800.
Nasal Calculi. F. W. Bailey, Cedar Rapids, Iowa.—p. 814.
Mechanical Problem of Bronchoscopic Removal of Pin from Right Upper Bronchus Under Fluoroscopy. I. D. Kelley, Jr., St. Louis.—p. 819.
Radiotherapy for Chronic Tonsillitis. J. W. Babcock, New York.—p. 836.
Functional Vertigo. G. E. Winter, Jackson, Mich.—p. 850.
Acute Ethmoiditis with Rupture into Orbit. A. C. Jones, Boise, Iowa. —p. 860.
Four Cases of Mastoiditis Where Operation Was Too Long Delayed. C. J. Swan, Chicago.—p. 868.
Schaefer-Galton Whistle. R. Sonnenschein, Chicago.—p. 877.
Dyestuff Antiseptics in Rhinology. R. A. Fenton, Portland, Ore.—p. 881.
Speech Complications Involved in Certain Types of Inadequate Palate, Especially Congenital Short Palate. E. L. Kenyon, Chicago.—p. 887.
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Microspectra I Absorption Spectrum of Euglena L G M Baas Becking and P A Ross, Stanford University, Calif—p 111
Temperature and Mechanism of Locomotion in Parmamecium O. Glaser, Amherst, Mass—p 115

Study of Chromosomes.—Parmenter presents cytologic observations on Loeb's parthenogenetic frog material, with considerations on the mechanism by which the diploid number and both sexes may be produced. Both sexes of adults and tadpoles are present. The chromosome number is diploid and probably twenty-six in both sexes. Sex chromosomes cannot be distinguished The chromosome numbers observed by other authors in parthenogenetic frog material are haploid, diploid, and variable. Their significance is considered. The mechanism producing the diploid number, based on European observations, appears to be a doubling of the haploid number at some time after the second polar body is given off. Overripeness may be a factor in producing both sexes of parthenogenetic frogs and tadpoles. Genetic data indicate that the normal male is digametic and that there are differences of potency between male and female factors for sex which vary in frogs of the two races and in strains within the race. These differences have been interpreted by Witschi as forming a series of multiple allelomorphs.

Journal of Infectious Diseases, Chicago

37: 193 284 (Sept) 1925

*Diplococcus in Measles. Measles Skin Reaction R. Tunnicliff, Chicago.—p 193
Protective Substance in Antipneumococcic Serum. I. L. D. Felton, Boston—p 199
Quantitative Changes in Blood Sugar and in Blood Lactic Acid in Canine Anaphylaxis M. McCullough and F. I. O'Neill, Stanford University, Calif.—p. 225
Quantitative Changes in Tissue Glycogen, Blood Sugar, Plasma, Inorganic Phosphates and in Blood Lactic Acid in Canine Histamin Shock. E K. Chambers and K. W. Thompson, Stanford University, Calif.—p. 229.
Classification of Spore-Free Gram-Negative Aerobic Rods. R. G. Perkins, Cleveland—p. 232.
*Extracts of Normal Tissues in Experimental Tuberculosis. R. S. Austin, Cincinnati—p. 256.

Induced and Natural Transmission of Blackhead in Absence of Heterakis. E. E. Tyzzer and J. Collier, Boston.—p. 265.
Effect of Medium on Rate of Multiplication, Virulence and Heat Susceptibility of Hemolytic Streptococcus. T. D. Beckwith and E. J. Rose, Berkeley, Calif.—p. 277.

Measles Diplococcus Cultures Cause Skin Reaction.—Tunnicliff concludes: Anaerobic dextrose broth cultures of the green-producing diplococcus found in measles, killed by 0.5 per cent. phenol, appear to produce a skin reaction in persons who have not had measles, but not in measles patients after the appearance of the eruption, or in 96 per cent. of persons who give a history of measles. The measles antigen is neutralized in persons who have not had measles, by convalescent human measles serum, but not by the serum of a person with a negative history of measles. Reaction occurs also in normal rabbits, while rabbits immunized against measles fail to react. The measles antigens are neutralized in rabbits by convalescent human measles serum and by the serum of goats recovering from the reaction produced by measles diplococci, but not by normal goat serum. Green-producing cocci from other sources generally give no reactions in rabbits, but the strains that do produce similar reactions in both immune and in nonimmune rabbits and are not neutralized by convalescent human measles serum. Normal rabbit serum neutralizes measles antigen partly; immune rabbit serum completely neutralizes it. These results indicate that the gram-positive, green-producing diplococcus found in measles is of etiologic significance.

Experimental Tuberculosis.—Austin states that the inoculation of simple extracts, not incubated, of certain fresh normal organs of the rabbit appears to influence the development of experimental tuberculosis in rabbits. The extracts of different kinds of organs vary considerably as to the amount of influence displayed. Extracts of suprarenal and lung frequently would seem to retard the development of the disease, those of heart and liver produce less effect, as a rule, while extracts of spleen and kidney exert little or no influence. The freshness of the organs used, the short time utilized in preparing the extracts, the avoidance of incubation and the preservation of the extracts, between inoculations, at icebox temperature make it seem possible that the more or less protective substances present in some of the organ extracts exist in the organs before removal from the animal.

Minnesota Medicine, St. Paul

8: 561-614 (Sept.) 1925

Cleft Lip and Palate: Correction of Late Deformities Resulting from Neglect or Improper Treatment. T. E. Farr, Minneapolis.—p. 561.
*Dick Test and Active Immunization Against Scarlet Fever with Detoxified Toxin. W. Colby, St. Paul.—p. 568.
Medical and Radiologic Management of Hyperthyroidism. M. J. Kern, St. Cloud, Minn.—p. 572.
Care and Treatment of Psychoneurotic. W. A. Jones, Minneapolis.—p. 577.
Causes of Some Surgical Failures in Gallbladder Disease. W. C. Carroll, St. Paul.—p. 583.
*Causes of Death in Fetus and New-Born: Based on Four Hundred and Fifty Necropsies. F. L. Adair, Minneapolis.—p. 586.
Use of Novasurol as Diuretic. H. Oerting, St. Paul.—p. 593.

Dick Test for Scarlet Fever.—Of fifty-seven children tested by Colby in private practice, forty-nine, or 86 per cent., gave positive reactions. Of 304 children tested in institutions, 153, or 50 per cent., gave positive reactions. Of 100 nurses tested, thirty-two, or 32 per cent., gave positive reactions. The reaction was found positive during the first two or three days of the rash and negative in convalescence.

Causes of Death in Fetus and New-Born.—During the years 1914 to 1924, inclusive, there was in Minneapolis a total of nearly 98,000 living births, of which over 50,000, or 51 per cent., were delivered in the hospital, and about 48,000, or 49 per cent., in the home. Of these deliveries approximately 36,000, or 36 per cent., were done by physicians in the home, making a total of over 87 per cent. delivered by physicians. During this period, about 12,000, or 12 per cent., of the deliveries were done by midwives. The percentage of home deliveries has decreased from 75 per cent. to 30 per cent. The percentage of deliveries by midwives has decreased during this same period of time from 20 to 6 per cent. During these same years there was a total of about 3,700 stillbirths with an average percentage of living births of 3.7, which percentage has remained practically stationary during this entire period of years. In this time over 2,200, or 60 per cent., of the stillbirths occurred in the hospitals of the city. The percentage of stillbirths occurring in the hospitals has increased from 35 to 75 per cent. During this time approximately 1,400 stillbirths occurred in the homes, an average of 2.9. There have been 1,850 neonatal deaths in the hospitals, this being 54 per cent. of the total number. Something over 1,500 neonatal deaths occurred in the home, an average percentage of 45. The total number of later infant deaths during this period was over 2,800. The total infant deaths during this period of time were over 6,000, the rate dropping from 82 in 1914 to 54 in 1923, with an average rate of 68.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

6: 139-202 (Aug.) 1925

Differential Estimation of Fat in Feces. G. A. Harrison.—p. 139.
*Influence of Site of Inoculation on Infectivity of Anthrax Bacilli and Pneumococci for Laboratory Animals. P. N. Panton and T. H. C. Benians.—p. 146.
*Sex Glands and Metabolism. III. Influence of Injections of Testicular or Ovarian Eumulsions on Nitrogen and Gaseous Metabolism of Dogs and Rabbits. V. Korenchevsky.—p. 158.
*Variations in Blood and Urine Diastase Contents in Relation to Meals. I. Cohen.—p. 173.
Rôle of Ether-Soluble Constituents of Serum in Certain Serologic Reactions. P. Hartley.—p. 180.
*Specific Precipitating Substance from Tubercle Bacilli. P. P. Laidlaw and H. W. Dudley.—p. 197.
*Useful Preservative for Whole Blood. A. H. Baker.—p. 201.

Influence of Site of Inoculation on Infectivity of Anthrax Bacilli.—Panton and Benians summarize their observations as follows: Death following transcutaneous inoculation of anthrax in rabbits does not appear to depend solely on the soiling of the skin by the needle in passage. The receptivities of the skin and the subcutaneous tissues of the rabbit for anthrax infection are different. A dose fatal in the skin can be tolerated under the skin. Subcutaneous inoculation is followed by immunity both to dermal and to transcutaneous inoculation in a small proportion of animals. This immunity is again lost subsequent to dermal inoculation. The white mouse is insusceptible to pneumococcal infection of the skin, highly susceptible to transcutaneous inoculation, and relatively insusceptible to purely subcutaneous infection. Some degree of immunity appears to follow both dermal and subcutaneous inoculation. The rabbit shows marked individual susceptibility to pneumococcal infection of the skin. The susceptible animal develops an acute inflammation of the skin, and no dermal immunity follows. These experiments suggest the possibility that in the experimental production of anthrax infection in rabbits and of pneumococcal infection in mice by transcutaneous inoculation a double factor is involved, both skin and subcutaneous tissues playing a distinct part.

Sex Glands and Metabolism.—The effects on nitrogen metabolism, on the one hand of castration and on the other of injections of testis or of ovaries (without corpora lutea) observed in most animals, Korenchevsky says, indicate that the sex glands probably contain hormones, which increase nitrogen metabolism. The varying effects on the nitrogen metabolism obtained after injections of emulsions of testis or of ovaries may possibly be explained by (1) the presence in them of specific (e. g., corpora lutea in ovaries) or of nonspecific (e. g., insulin-like substances) principles; (2) by the varying degree of functional efficiency and, therefore, the varying reaction of the synergetic and antagonistic female animals by the different stages of development of the corpora lutea or of the remaining ovarian tissue in their own ovaries. Experiments on thyroidectomized animals show that, in spite of the close interrelationship between sexual and thyroid glands, changes in nitrogen increased stimulation of the thyroid gland.

Blood and Urine Diastase During Meals.—It has been demonstrated by Cohen that the output of diastase into the urine varies greatly. During the day, the rate of diastase output rises and falls without apparently any definite cycle of change. Meals seem to produce an immediate increase in output, which is more marked in some individuals than in others. After the meal effect there is no definite indication whether the output will rise or fall. Readings made during starvation periods have also been found to be irregular. The blood diastase remains at a constantly low level throughout the observation periods, despite the marked changes in the urinary diastase content. It would appear, therefore, that diastase is irregularly absorbed from the bowel, and then is excreted as completely as possible from the blood. In the light of these observations, examination of isolated specimens of urine for clinical purposes would seem to yield very unreliable information. On the other hand, however, the relative constancy of the blood diastase content renders the necessity for any special precautions with regard to meals unnecessary.

Specific Precipitating Substance from Tubercle Bacilli.—Glycogen has been isolated by Laidlaw and Dudley from tubercle bacilli, likewise a carbohydrate complex of the nature of a gum. This gum gives specific precipitation with immune serum. The gum is not a true antigen, since it fails to induce the formation of antibodies. The significance of these findings is discussed.

Useful Preservative for Whole Blood.—Baker has found that fowl blood will travel safely for several days through the post, and permit a satisfactory agglutination test on its arrival if the boric acid content of the tube be between 1:100 and 1:500.

British Journal of Children's Diseases, London

22: 171-250 (July-Sept.) 1925

*Scarlet Fever: Susceptibility as Determined by Dick Intracutaneous Test. W. A. Brown.—p. 171.
Lipodystrophia: Two Cases. V. Coates.—p. 194.
*Cerebral Degeneration in Infant. N. H. Schuster.—p. 206.
Two Cases of Occlusion of Bile Ducts in Infants. W. M. Feldman.—p. 215.
Case of Ascaridiasis with Benign Jaundice. A. Panayotatou.—p. 218.

Dick Test in Scarlet Fever.—Brown regards the Dick intracutaneous test as a reliable index of susceptibility and immunity to scarlet fever. The test is a valuable aid to diagnosis, and a strongly positive skin reaction in the first forty-eight hours of a scarlatiniform eruption would lead one to hesitate before making a diagnosis of scarlet fever. When a patient who has recently shown a positive Dick reaction develops a scarlatiniform attack, the reappearance of the red area at the site of original inoculation is confirmatory of a diagnosis of scarlet fever. The results of the test demonstrate that age susceptibility is highest at a period before the children commence to attend school, whereas age incidence is greatest during the first few years of school life. This shows that immunization, if adopted as a prophylactic measure in "state medicine," should be carried out in the first few years of life. The well recognized fact that an attack of diphtheria increases the patient's susceptibility to scarlet fever is confirmed by the test.

Cerebral Degeneration in Infant.—One case is recorded by Schuster, with necropsy findings. The location of the disease to the basal ganglions, he thinks, suggests the possibility of its being associated with the hepatolenticular degeneration described by Wilson. It is a malady of youth, and is also a symmetrical bilateral degeneration of the lenticular nucleus, especially the putamen, and the question arises as to whether this can be the result of a similar toxemia in a stage previous to hepatic involvement, or, perhaps, a rapid form peculiar to infants, omitting the liver degeneration altogether, though Wilson considers the liver as the primary focus of the disease in his cases. There are many points of similarity between the two diseases, but Schuster prefers, for the present, at least, to regard them as separate clinical entities.

British Journal of Radiology, London

30: 327-360 (Sept.) 1925

Neoplasms of Lungs and Bronchi. P. Kerley.—p. 333.

British Medical Journal, London

2: 461-498 (Sept. 12) 1925

*Multiple Neuritis. T. G. Stewart.—p. 461.
Influence of Sunlight and Artificial Light on Health. I. L. Hill.—p. 470.
Id. II. G. B. Dixon.—p. 473.
Id. III. D. C. Colebrook.—p. 475.
Extensor Plantar Response (Babinski's Sign) in Coma. C. O. Hawthorne.—p. 477.
Webbed Hand with Abnormalities of Bones. A. H. Turner.—p. 479.
Acute Intestinal Obstruction Due to Gallstone: Volvulus of Small Intestine Above Obstruction. N. Smith.—p. 479.
Acute Appendicitis in Aged. F. C. Forster.—p. 479.

Multiple Neuritis.—Stewart holds that it is no longer possible to limit the conception of multiple neuritis to one in which the peripheral nerves alone are affected. One must think in terms of neurons, not of nerves, and study cases clinically from the point of view of functional disturbance or, more correctly, interference with function. It is illogical to separate a nerve cell from its fibers; they are essentially one from the point of view of function, and interference with either must, and does, affect both. In all cases of toxic affection of the nervous system, the element of selectivity is present in greater or less degree, and the greater the degree the more specialized will be the functional disturbance. Further, the selective action is not necessarily directly due to a primary action on the nerve elements proper; it may be to its affinity for the chemical elements of the tissues in which they lie. The other factor is the path of infection and its influence in determining the clinical function.

China Medical Journal, Shanghai

39: 479-572 (June) 1925

Prolapse and Pregnancy. J. P. Maxwell.—p. 479.
Transuterine Insufflation Test for Patency of Tubes. P. D. Hoffman.—p. 486.
*Compound Pregnancy. E. M. Ewers.—p. 493.
*Unusual Indication for Cesarean Section. M. L. James.—p. 498.
Finding of Miliary Tubercles in Choroid of Necropsy Specimens. T. P. Lee.—p. 501.
Gastric Secretion. R. K. S. Lim.—p. 505.

Compound Pregnancy.—In Ewer's case a tumor was attached to the lower end of the uterus with a pedicle about 5 cm. in diameter. It was decided to remove both the tumor and uterus, as it seemed impossible to divide them. On being opened, the larger of the tumors contained a perfectly developed fetus. No fluid was present. There was evidence of maceration or lithopedion formation. The fetus seemed to be completely mummified. On manipulating the uterus, another fetus popped out. No liquor or blood appeared. It measured 18 cm. in length and weighed 270 gm. No maceration or destruction was apparent.

Rare Obstacle in Labor.—James' patient was six months pregnant, and asked to have her pregnancy terminated at once because she could not give birth to a full-grown child in the ordinary way. On examination James found that for the upper third her thighs were bound closely together by a very dense, gristly cicatrix, continuous anteriorly with the skin of the abdominal wall. The deformity was the result of a burn suffered at least ten years previously. Evidently she had lain for months with the adjacent burned surfaces of her thighs in contact, while the healing process slowly proceeded. Anteriorly, there was not even a pin-point aperture between the cicatrix and the abdominal wall, which was pulled tensely down by the retraction of the scar tissue. Posteriorly, the trouble had not extended to the buttocks and perineum, nor had it involved the posterior portion of the labia. The thighs could not be separated sufficiently, however, to permit the passage of even a moderate-sized infant. Hence, the vaginal route was quite obviously out of the question for the delivery of a viable fetus, even several weeks before term. The woman was advised to wait and return at term for a cesarean section. She accepted the advice, and in due time James performed the cesarean section and delivered a healthy looking male infant.

Glasgow Medical Journal

22: 121-184 (Sept.) 1925

Epidemic Diseases of Central Nervous System. A. K. Chalmers.—p. 121.
Early Diagnosis of Pulmonary Tubercle. I. S. Stewart.—p. 153.

Journal of Laryngology and Otology, Edinburgh

40: 621-631 (Sept.) 1925

Paroxysmal Rhinorrhea. J. Freeman.—p. 561.
Vasomotor Rhinitis. A. B. Kelly.—p. 568.
Paroxysmal Rhinorrhea. J. Adam.—p. 577.
*Results of Operations on Nose and Throat in Cases of Asthma. M. C. Tod.—p. 582.
Eruption of Canine Tooth into Nasal Fossa Attended by Rhinitis Caseosa. P. H. Abercrombie—p. 586.

Result of Operation for Asthma.—Analysis of 202 cases of asthma previously subjected to operation made by Tod shows that where the airway is blocked or there is an obvious focus of infection, operation often relieves the symptoms of asthma very much and in young people may even result in a cure, while if the nose is apparently normal the cautery may be of great service. So far no specific cure for every case of asthma has been found, hence every positive method of relieving the symptoms of this most distressing disease should be given a fair trial.

Journal of Tropical Medicine and Hygiene, London

28: 329-344 (Sept. 15) 1925

Pruritus Ani and Pruritus Vulvae of Mycotic Origin. A. Castellani.—p. 329.
Relapsing Fever in Northern Nigeria; 300 Cases. W. E. McCulloch.—p. 332.

Lancet, London

2: 633-682 (Sept. 26) 1925

*De Minimis. A. Edmunds.—p. 633.
*Diabetic Coma. W. W. Payne and E. P. Poulton.—p. 638.
Transmissible Bacterial Lysin; Action on Dead Bacteria. F. W. Twort.—p. 642.
*Cancer and Acquired Resistance to Tubercle. T. Cherry.—p. 644.
Bakers' Dermatitis. N. H. Mummery.—p. 647.
Intradural Abscess Secondary to Frontal and Ethmoidal Sinusitis. H. A. Cowan.—p. 648.

De Minimis.—Edmunds describes a number of practical devices which he has found useful in his surgical work, such as the easy and ready removal of nonabsorbable intradermic sutures; keeping a bandage in position for wounds of the neck; a nutrient beef tea; keeping Thiersch grafts in position; insertion of drainage tubes; removing finger nails and toe nails, etc. He asks that all surgeons place on record these minor or lesser details of technic which usually can only be learned by a visit to clinics and yet mean so much in the successful outcome of a case.

Renal Element in Diabetic Coma.—Eleven cases of diabetic coma are reported by Payne and Poulton and certain cases are reviewed from current literature. A definite renal element, as shown by oliguria, albuminuria and urea retention and failure to excrete ketone bodies, and occasional sugar, is present. In some cases this renal failure is so decided as to cause a marked resemblance to uremic coma. The cause of the renal failure has been discussed. The treatment is carried out by means of large injections of insulin, and by the administration of much fluid, containing dextrose, by the mouth.

Tuberculosis and Cancer.—The steady decline in the number of deaths from tuberculosis and the equally steady advance of cancer is discussed by Cherry, and vital statistics bearing on the subject are reviewed for the purpose of finding a reason for this apparent relationship. The question to be answered is, whether heightened resistance to tuberculosis has any effect on the greater incidence of cancer.

Sei-I-Kwai Medical Journal, Tokyo

49: 1-6 (Aug.) 1925

Functional Increased Permeability of Cell-Membrane. K. Utiyama.—p. 1.
Physiologic Action of Carbon Dioxid. K. Utiyama.—p. 5.
Relation Between Free Hydrochloric Acid and Pepsin in Human Gastric Juice. T. Nishikawa.—p. 5.

Comptes Rendus de la Société de Biologie, Paris

93: 393-468 (July 17) 1925. Partial Index

The Bacteriophage in Bacillus Typhi Murium Infection. M. M. Lévy.—p. 395.
Methemoglobin and Oxyhemoglobin. V. Balthazard and M. Philippe.—p. 398.
Action of Electrolysis on Diastases. F. Maignon.—p. 400.
Test. Flocculation of Gonococcus Serums. D. de la Rivière and Roux.—p. 403.
Priority in Autoradiography. Kotzareff.—p. 404.
*Lactic Acid in Blood Vessels. J. A. Collazo.—p. 407.
Blood Changes in Hyperpnea, Targowla et al.—p. 417.
*Vasoconstrictor Action of Broom. Busquet and Vischniac.—p. 419.
*Resorption of Oils in Subcutaneous Tissue. L. Binet and J. Verne.—p. 421.
Production of Cholesterol by Mushroom. Rémond and Lassalle.—p. 426.
*Vaccination Against Botulinus Toxin. Weinberg and Goy.—p. 430.
*Isolation and Cultivation of the Enterococcus. L. Muller.—p. 433.
*Apparatus for Anaerobic Cultures. L. Muller.—p. 436.
Influence of Protein-Globulin Ratio on the Osmotic Pressure. P. Govaerts.—p. 441.
*Action of Cations on Auricle. L. Deloyers.—p. 443.
*Mechanism of Tar Cancer. J. Maisin and G. Masse.—p. 449.
The Bacteriophage in Colon Bacillus Septicemia. Gratia and Doyle.—p. 452.
Surface Tension of Plasma in Shock. E. Zunz.—p. 463.

Lactic Acid in Blood Vessels of Liver and Muscles.—Collazo's experimental research on dogs demonstrated that the liver transforms carbohydrates into lactic acid. Blood from the liver and muscles as well as that of the general venous circulation contains more lactic acid and less glucose than the arterial blood.

Action of Scoparius on Veins.—Research on dogs showed Busquet and Vischniac that broom induces not only constriction of the artery, but also of the vein. The action is due partially to direct excitation of the venous wall, and partially to a mechanism in which the nerve center and the venoconstrictor efferent fibers are involved.

Fate of Oils in Subcutaneous Tissue.—Binet and Verne injected guinea-pigs, rabbits and dogs with oils. Under a leukocyte reaction, the substances changed and their resorption was very slow. The resorption of animal fats (horse oil) proceeded more rapidly than that of vegetable oils (olive oil).

Vaccination of Animals Against Botulinus Poisoning.—Weinberg and Goy vaccinated rabbits and guinea-pigs by twelve subcutaneous injections of botulinus anatoxin, given once daily in a dose of 1 c.c. The results seemed to be more pronounced in animals previously sensitized by injection of a small dose of anatoxin. The same effect was manifest with a single injection of 3 c.c. of the botulinus toxin treated with formaldehyd. The authors emphasize that vaccination was also effectual with anatoxin given by mouth.

Method for Cultivation of the Enterococcus.—Muller describes a method for obtaining cultures of the enterococcus, which may prove valuable in preparation of enterovaccines.

Apparatus for Cultivation of Anaerobes.—Muller illustrates a special tube for cultures of anaerobic bacteria. The technic is based on absorption of oxygen by hydrogen in presence of a heated catalyzer, without the use of the electric current.

Enhancing the Action of Cations on the Auricle.—Deloyers noted that the action of calcium and potassium ions on the isolated right auricle of a rabbit became more intense under electrolytic concentration of these ions near the Keith node. The action of cations on the heart was instantaneous.

Tar Cancer Not Due Merely to Local Irritation.—Maisin and Masse conclude from their experiments on mice that cancer from tar may be ascribed not only to local irritation, but also to the toxic action of the tar on the whole organism.

93: 469-552 (July 24) 1925. Partial Index

Polonium and Radium Emanation. A. Kotzareff.—p. 471.
The Cerebrospinal Fluid in Acidosis. Cestan et al.—p. 475.
*Action of Alcohol on the Thymus. J. Jolly.—p. 478.
*The Galleria and Danysz' Bacterium. I. Chigasaki.—p. 480.
The Diastases of Bacterium Sinicus. E. Lagrange.—p. 484.
*Inhalation of Mercury and Arsenic. P. Poincloux.—p. 487.
Plasmophages and Macrophages. A. Alexeieff.—p. 494.
Rôle of Lymphocytes: The Mesenchyma Theory. A. Alexeieff.—p. 496.
Flocculation and the Bacteriophage. Dujarric de la Rivière.—p. 498.
*Tuberculosis Infection from Filtrates. Durand and Charchanski.—p. 499.
*Anatoxin Plus Powder in Immunization Against Diphtheria. Ramon.—p. 506.
*Idem Against Tetanus. G. Ramon and P. Descombey.—p. 508.
*Nature of the Bacteriophage. F. d'Herelle.—p. 509.
*Calcium in the Blood in Asphyxia. Binet and Blanchetière.—p. 511.
*Effect of Tropin on Saliva Secretion. Hazard and Mercier.—p. 518.
*Vaccine from Stool in Enteritis. R. Monziols.—p. 521.
Rôle of Saliva in Domestic Animals. L. Jung.—p. 526.
Liver and Intestine in Digestive Anaphylaxis. F. Arloing et al.—p. 528.

*The Bacteriophage. F. Arloing and Chavanne.—p. 531.
*Cultivation of Periosteum Explants. Policard and Boucharlat.—p. 533.
Abnormal Location of Kidney and Atavism. J. Primans.—p. 549.

Degeneration of Thymus from Alcohol.—Injections of ethyl alcohol into the peritoneal cavity of white rats induced pyknotic degeneration of the thymus cells. The lesions were considerably developed by the fifteenth to the eighteenth hour after the injection, and were followed by sloughing by the twenty-fourth hour. The same phenomenon occurred with injections of sodium chlorid solution with a little hydrochloric acid. Thus lesions identical to those from the roentgen rays may be produced by substances not exerting a direct action on the acid-base balance of the blood. Jolly believes that an indirect action from the hydrogen ion concentration may possibly be responsible for the degeneration of the thymus.

Resistance of Galleria to Danysz' Bacterium.—Chigasaki's experiments demonstrated that the resistance of *Galleria mellonella* to Danysz' bacterium was most manifest in the caterpillar, less in the perfect moth, and still less in the chrysalis. The resistance was materially reduced during the stage of transformation from larva to pupa.

Action of Vapors of Mercury and Arsenic on Syphilis and Trypanosomiasis.—Research on 160 mice or rats and twelve rabbits convinced Poincloux that vapors of mercury and arsenic are easily absorbed by the lungs. Inhalation of mercury exerted a beneficial action on syphilis and nagana. Inhalation of arsenic anhydrid cured definitely nagana in mice.

Infection from Tuberculous Filtrates.—Summarized in Paris Letter, October 10, page 1149.

Enhancing the Potency of Diphtheria Antitoxin.—Ramon has noted for several years that diphtheria antitoxin from horses with an abscess in the area of antigen injection (toxin or anatoxin) contains about twice as much antitoxin as serum from horses without the complication. After different experiments, he finally obtained a considerably more potent diphtheria antitoxin by using for the injections diphtheria anatoxin mixed with pulverized tapioca. This was due apparently to the induced local reaction, with edema, leukocyte afflux and retarded resorption of the antigen. The antitoxic potency of the serum from twelve horses, injected with 290 c.c. of anatoxin, was 200 units. Subsequent inoculation of these horses with 450 c.c. of the anatoxin-tapioca mixture, increased the antitoxic power of their serum to 800 units by the eighth day after the last injection. A total of forty horses were inoculated with 640 c.c. of the mixture. The average amount of antitoxin in the serum was about 700 units per cubic centimeter at the end of the hyperimmunization. The range was from 800 to 2,500 units. The antitoxin content of serum from horses immunized by the old technic with 1,200 or 1,500 c.c. of toxin was only 400 units.

Enhancing the Potency of Tetanus Antitoxin.—Ramon and Descombey observed that while 1 c.c. of serum from five horses injected with 220 c.c. of tetanus anatoxin neutralized 200 times the lethal dose, the serum from five horses injected with the same dose of anatoxin, plus pulverized tapioca, neutralized 10,000 times the lethal dose. Twenty-eight, previously inoculated with anatoxin and then toxin, were further given injections of toxin; fourteen were injected with the toxin-tapioca mixture. The serum from the first group of horses contained only 1,500 units, while the serum from the second group showed over 3,000 units.

The Bacteriophage a Living Organism.—On the basis of his personal experiments and those of others, d'Herelle reiterates anew that the bacteriophage is a living corpuscular element, independent of the lysed bacteria, which displays vital properties of assimilation and adaptation. He disagrees with Carrel who regards the bacteriophage as analogous with Twort's agent. The latter, he says, may originate from bacteria, since transmission of action is not exclusively restricted to living bodies. This has been demonstrated by the activation of pancreatic juice and by the disease of tin.

The Calcium in the Blood in Asphyxia.—Binet and Blanchetière's research on dogs, under chloral, indicated that the venous blood contains more free calcium than the arterial blood. Asphyxia is accompanied by hypercalcemia, sometimes preceded by transient hypocalcemia.

Action of Tropin on Secretion of Salivary Glands.—Hazard and Mercier conclude that tropin—a base derived from atropin—exerts a paralyzing action not only on the vagus but also on the secretory nerve terminals in the submaxillary gland. The secretion of saliva progressively decreases with each dose of tropin. The gland recuperates very slowly even under strong excitation.

Iodized Autovaccine in Treatment of Enteritis.—Monziols' treatment in thirty cases of chronic enteritis was with from fifteen to twenty intramuscular injections of an iodized autogenous vaccine (Weinberg's tilotherapy) given daily or at two or three days intervals. The vaccine is made from the stools. The results were favorable in twenty-eight patients. Improvement of stools and of the general condition was manifest after a few injections. The method, he says, is simple, easily applied and absolutely harmless.

Influence of Electrolytes and of Hydrogen Ion Concentration on the Bacteriophage.—Arloing and Chavanne assert that the presence of an electrolyte is necessary, but not sufficient alone to produce the bacterial lysis. The lysis is not a chemical phenomenon, since changes of hydrogen ion concentration can occur without arresting the lysis. The bacteriophage may exert its lytic action also in an acid medium.

Rôle of Perichondrium in Formation of Bone and Cartilage.—Policard and Boucharlat found exclusively connective cells in explant cultures of periosteum and perichondrium from mammals. Evidently the formation of bone and cartilage is due not only to the periosteum and perichondrium, but it involves also certain humoral actions, which are lacking in test tube cultures.

Presse Médicale, Paris

33: 1217-1232 (Sept. 12) 1925

*Cholecystatony. M. Chiray et al.—p. 1217.
The Vicious Circle Syndrome. Rochet and Pollosson.—p. 1220.
*Bilirubinemia. G. Piotrowski.—p. 1222.

33: 1233-1248 (Sept. 16) 1925

Theoretical and Clinical Significance of Chronaxia. Lapicque.—p. 1233.
Bacteriophage Treatment of Typhoid. H. Violle and M. C. Roure.—p. 1236.
Enterostomy in Intestinal Obstruction. X. Delore et al.—p. 1236.
Pyorrhea. C. Ruppe.—p. 1238.

Inertia of the Gallbladder: Symptoms and Treatment.—Chiray and his co-workers call attention to cases of distended gallbladder in which stagnation of the bile is not from gallstones nor from inflammatory adhesions, but from insufficiency of the contracting power of the gallbladder. With duodenal intubation or intraduodenal injection of magnesium sulphate, an abnormal amount of dark colored bile is obtained. The inertia of the gallbladder may be revealed by its tenderness in the recumbent position, dyspeptic phenomena, and also by migraine with bilious vomiting. It appears to be chiefly induced by changes of the vegetative nervous system. The treatment consists in repeated medical drainage of the bile, thus training the gallbladder to better functioning. Pilocarpin or eserin, by the mouth or in subcutaneous injections, as well as pituitary extract, exert a positive action in these cases.

Value of the Diazo Reaction in Diagnosis of Bilirubinemia.—Piotrowski analyzes the different methods for quantitative estimation of the bilirubin in the blood. He concludes that van den Bergh's reaction, as modified by Thannhauser and Andersen, is the most dependable procedure. Retention of bilirubin in the blood may be detected by the diazo reaction even in the absence of clinical manifestations.

Schweizerische medizinische Wochenschrift, Basel

55: 841-860 (Sept. 10) 1925

Roentgen-Ray Examination of the Duodenum. E. Attinger.—p. 841.
Spontaneous Hemorrhage of the Spinal Cord in a Young Man. Wolfer.—p. 846.
Forceps in Breech Presentation. A. Goenner.—p. 852.

55: 861-884 (Sept. 17) 1925

Dangers of Artificial Abortion in Physician's Office. B. Waser and R. Otto.—p. 861.
Action of Potassium Bromid and Iodid on Ptyalin. E. Fricker.—p. 864.

Curvature of the Spine. M. Dubois.—p. 867. C'td.
"Alcoholic Heredity." A. Forel.—p. 873.
School for Psychiatric Nurses. W. Morgenthaler.—p. 875.

Pediatria, Naples

33: 973-1028 (Sept. 15) 1925

The Hemopoietic Organs in Malaria. G. Vitetti and R. Pollitzer.—p. 973.
Fibrinous Pancreatitis in an Infant. E. Forlini.—p. 979.
*Glucose, Cholesterol and Calcium in the Blood. G. De Toni.—p. 987.
Anthrax of the Skin. M. Gerbasi.—p. 996.
Vaccine Prevention of Measles. P. Annecchino.—p. 1006.
Fatal Respiratory Complications of Measles in Three Young Children. Sindoni and Guccione.—p. 1008.
Early History of Pediatrics in Italy. F. de Capua.—p. 1015.

Glucose, Cholesterol and Calcium in the Blood.—De Toni found a little higher average levels of these three substances in the blood of small children than in older ones and adults.

Policlinico, Rome

32: 425-476 (Sept. 1) 1925. Medical Section

*Chronic Meningomyelitis. F. Sabatucci.—p. 425.
The Sachs-Georgi Test in Syphilis. G. Lionetti.—p 447.
The Meinicke Turbidity Test in Syphilis. L. Beretvàs.—p 460.
*The Cerebrospinal Fluid in Malaria. R. Monteleone —p. 470.

Chronic Meningomyelitis.—The man was 35 years old when a clinical picture insidiously developed with pains in the lumbar region, weakness of the legs and disturbances in urination. The asthenia and bladder disturbances progressed and the reflexes were gradually abolished, suggesting a glioma in the lower spine. A grave attack of malaria speeded up the chronic affection, with terminal sepsis from retention of urine, four years after the onset. Necropsy disclosed chronic proliferative processes in the spinal meninges and cord and in their vessels, with lesions of degeneration, essentially destructive, in the vessels. There was no evidence of tuberculosis or syphilis. The Wassermann test and tentative treatment for syphilis were negative. Sabatucci has been able to find only one similar case on record. By exclusion he is inclined to attribute the whole clinical picture to malaria—the man lived in a malarial zone—and warns that malaria should be suspected in every case of meningomyelitis in which other obvious causes can be excluded.

The Cerebrospinal Fluid in Malaria.—Monteleone found the lumbar puncture fluid normal in the old chronic cases. In fifty persons with malaria parasites in their blood, the pressure rose with the temperature, but sometimes kept above normal even during the intervals between the febrile attacks. The sugar content was high in the acute cases and, in certain instances of pernicious malaria, the albumin content was high, with lymphocytosis. The findings thus suggest congestion, not a malaria meningitis, but merely a meningeal syndrome connected with the fever.

32: 421-472 (Sept. 15) 1925. Surgical Section

Primary Suture After Cholecystectomy. G. Baggio.—p. 421.
Case of Juxta-Articular Nodules. C. Patanè.—p. 428.
A Primary Lymphoblastoma of the Ovary. G. Petta.—p. 437.
*Hemorrhagic Pancreatitis. T. Lanfranco.—p. 442.
*Oncogenetic Importance of Trauma. G. Villata.—p. 451.

Hemorrhagic Pancreatitis.—Lanfranco remarks that hemorrhagic pancreatitis seems to be becoming more frequent, but this is merely because many cases in the past have not been diagnosed correctly. He describes two typical cases, with necropsy in one, and emphasizes as differential points the absence of jaundice in what seemed to be an unusually severe recurrence of gallstone colic without jaundice. There was slight fever in one and none in the other case; the pulse was small and rapid. The patients were well nourished, and the facies did not suggest peritonitis. The tenderness and stiffening of the abdominal walls were most pronounced above the umbilicus. The meteorism was epigastric and there were signs of fluid in the peritoneum, and considerable dyspnea and restlessness.

Importance of Trauma as a Factor in Cancer.—Villata reviews what has been published on this subject, and relates that a single severe trauma had preceded the malignancy in 6.8 per cent. of his forty-five personally observed cases of sarcoma in bone, and in 6.6 per cent. of thirty cases of sarcoma in muscle, and in 3 per cent. of thirty-one in internal organs. Excluding the dubious cases, 8 per cent. of the total 127 sarcoma cases. With carcinoma, the corresponding total percentage was 5.19 per cent. Summarizing the whole, gives 2.23 per cent. of 762 cases of cancer. The interval before the cancer became manifest ranged from a few weeks to eleven years. He accepts that trauma undoubtedly favors production of cancer in the injured tissues, but is never directly responsible for the malignancy.

Riforma Medica, Naples

41: 745-768 (Aug. 10) 1925

*Substance That Activates Carbohydrate Metabolism. Condorelli.—p. 745.
Flocculation with Extracts of Tuberculous Organs as Antigens. C. Montemartini.—p. 747.
Hydatid Cyst in Liver or Gallbladder Disease? Cantelli.—p. 750.
*Vegetative Disturbances After Encephalitis. Calligaris.—p. 754.

Vegetable Substance Activating Metabolism of Carbohydrates.—Condorelli calls attention anew to the substance he has obtained by alcohol extraction from leaves of grains, which rapidly reduces the sugar content of the blood, and usually of the urine, in pancreatectomized dogs and in diabetic patients. The tolerance for carbohydrates is augmented for some time after administration of the fitochinina, as he calls this substance. There is no precipitation with picric acid, thus differing essentially from insulin and glycophytin. The most striking difference, however, is that the fitochinina does not manifest any appreciable action in the normal; it resembles vitamins in this respect. Only in certain pathologic conditions does it display its special effect. It seems to be harmless; normal rabbits showed no disturbance after intravenous injection of 20 c.c. The fitochinina is not precipitated by the usual reagents that act on albumin.

Gastric and Nervous Sequelae of Epidemic Encephalitis.—Calligaris refers to cases in which the tongue is chronically coated, and gastritis is assumed when in reality the leukoplakia of the tongue is a manifestation of the derangement of the vegetative nervous system, as are also the numerous nervous symptoms. The list of possible nervous manifestations is so long and varied that one can almost speak of a functional blocking of the extrapyramidal vegetative system. A special feature of these postencephalitis nervous manifestations is that they are often limited to one small portion of the body, a hand, a finger, half of the face, etc. The paresthesias are peculiarly strange and multiform, such as a sensation of the loss of part of the body, of internal tremor, sensation as of flying, or of a cold blast. An abnormally exaggerated appetite or thirst has been noted after epidemic encephalitis, and Calligaris has been impressed by the way in which these signs of derangement in the vegetative nervous systems may remain latent most of the time and flare up only after meals, or previous symptoms then become much exaggerated.

Anales de la Facultad de Medicina, Montevideo

10: 395-480 (May) 1925

*Hydatid Cysts in the Liver. H. García Lagos.—p. 395.
Roentgenographic Study of the Duodenum. J. Cunha.—p. 409.
*Serohemoflocculation. A. Prunell.—p. 427.

Hydatid Cysts in Liver Opening into the Biliary Tract.—García Lagos adds four more to the list compiled by Prat recently, and warns that the cyst in the liver may be overlooked when the symptoms from the gallbladder or bile ducts dominate the clinical picture. In one of his cases an operation on a second cyst in another lobe of the kidney was deferred for two months. In two cases the cysts had never caused symptoms until the perforation into the common bile duct when pains, diarrhea and fever with jaundice called for an emergency operation. The patients recovered under drainage of the cyst alone. In other cases the clinical picture was that of chronic gallbladder disease. A cyst in the liver should be suspected in every case of liver colic and of jaundice from retention.

Serohemoflocculation.—This is Prunell's term for his flocculation test for syphilis. It is based on the parallelism between any reduction in the degree of dispersion of the globulin and the biologic activity of the blood serum. The balance of colloids depends on the balance between the ions.

Archivos Lat.-Amer. de Pediatría, Buenos Aires

19: 797-842 (May) 1925

*The Aorta in Children. E. A. and J. J. Beretervide.—p. 797.
*Natural Autoplacenta Galactagogue. E. M. Pueyrredón.—p. 802.
*Unilateral Parkinsonism. M. A. Jáureguy.—p. 815.
Invagination in an Infant—Meckel's Diverticulum. N. Leone Bloise.—p. 821.

Aortitis in Children.—The Beretervides state that in child cadavers a bistoury inserted to graze the left margin of the sternum, in the second and third interspaces, enters the aorta. In children, therefore, auscultation of the aorta should be applied to the left of the sternum. The diameter of the ascending aorta is 1 cm. to the age of 8, and 1.3 cm. from 9 to 14. When the diameter exceeded this, congenital syphilis was beyond question in their 476 cases.

Placenta Extract as Galactagogue.—Pueyrredón comments on the fact that herbivora become carnivorous only at one time, namely, after the birth of the offspring, when they eat their own placentas. His experience with tablets of human placenta substance corroborates the assumption that ingestion of the placenta promotes the production of milk. He summarizes six clinical cases which seem to establish the galactagogue action of the tablets.

Hemiparkinsonism.—Jáureguy's patient, a boy of 15, developed a condition of hemiparkinsonism two years after an attack of epidemic encephalitis. The extrapyramidal contracture is exclusively on the right side. Under intravenous treatment with sodium cacodylate he materially improved in the course of four months. He was given a total of 59 gm. of the cacodylate, in nine weeks, in a 50 per cent. solution.

19: 843-892 (June) 1925

*The Mikulicz Syndrome. F. Bazán and R. Maggi.—p. 843.
Dementia Praecox in Boy Aged 7. Beretervide and Pozzo.—p. 854.
*Acute Leukemia. Alice Armand Ugón.—p. 860.
Syphilitic Meningitis in Infant. M. A. Jáureguy.—p. 864.
*Post-Measles Encephalitis. J. Bonaba.—p. 868.
Vincent's Angina with Hemorrhagic Septicemia. Portú Pereyra.—p. 874.
*Extreme Edema of Infant's Legs. M. A. Jáureguy.—p. 877.

The Mikulicz Syndrome.—Congenital syphilis was evidently responsible for the chronic bilateral enlargement of the salivary glands in the boy, aged 8, as also for the hypothyroidism and defective development of the genital organs. The lacrimal glands were not affected. The condition has persisted unmodified by any treatment.

Acute Leukemia.—Armand Ugón reports the seventeenth case under observation in Morquio's service. The boy, aged 7, died two months after the acute lymphoid leukemia had been recognized, after six weeks of the insidious onset. The family and child were otherwise healthy. Roentgen irradiation was borne well but did not induce improvement.

Encephalitis Consecutive to Measles.—Bonaba's patient was a girl, aged 13, whose fever kept up after apparent recovery from measles. The twentieth day convulsions developed, soon becoming restricted to the right side and yielding to right hemiplegia of the adult type, with pronounced aphasia. This clinical picture is now gradually subsiding. Bonaba urges more intensive study of the posteruptive stage in acute infectious diseases as it is a period fraught with many dangers from secondary infection and from the pathologically altered fluids and secretions.

Extreme Edema from Deficiency Diet.—A thin vegetable soup had been ordered by the physician to correct the diarrhea of the young infant, but the mother kept it up for months, boiling the decoction of carrots, garlic, etc., down to one half. The edema of the legs resembled elephantiasis while the trunk was underdeveloped and atrophied. On a suitable diet the edema disappeared in about a week. There had evidently been retention of chlorids.

Ars Médica, Barcelona

1: 1-32 (July) 1925

Two Screws in Treatment of Fracture of Neck of the Femur. F. Masmonteil.—p. 1.
Operative Treatment of a Form of Incontinence of Urine in Women. M. Bonafonte.—p. 4.
Precancer Conditions of the Penis. J. Peyri.—p. 5.
The Hypertension of the Menopause. M. J. Yacoel.—p. 9.
Technic for Deep Radiotherapy in Cancer of the Larynx. Vila Abadal.—p. 12.
*Diagnostic Puncture of the Pouch of Douglas. J. Roura Rosés.—p. 13

Puncture in the Pouch of Douglas.—Roura Rosés has found puncture useful in the diagnosis of inflammation in the pelvis in twenty-three cases. If the blood obtained is dark and thick, it is due to hemorrhage. If it is limpid and flows readily, casual puncture of some vessel or a traumatic hemorrhage is probable. Pus confirms the presence of adnexitis or pelviperitonitis. A viscous fluid indicates a mucoid cyst in the ovary while, if the fluid is limpid, the cyst is para-ovarian or a hydatid cyst. A frankly serous fluid is a sign of serous peritonitis, and in this case the puncture is therapeutically useful, the fluid aspirated with the syringe.

Clínica, Montevideo

3: 71-91 (May) 1925

*General Paralysis in a Child. A. Sicco and N. Leone Bloise.—p. 71.
*Retrobulbar Neuritis. R. Botey.—p. 79.

Infantile General Paralysis.—A woman with two healthy children contracted syphilis from an infant given her to nurse. A series of abortions followed and finally a boy was born who developed general paralysis at the age of 12. A change of character, the child becoming morose and irritable, was the first manifestation of the general paralysis; the boy had previously been apparently normal except for two attacks of febrile rheumatism which had entailed a mitral defect.

Retrobulbar Neuritis and the Posterior Sinuses.—Botey says that the enthusiasm in regard to treatment of retrobulbar neuritis by operations on the sinuses is a little exaggerated. Even with the apparently best established diagnosis, the operation may fail to relieve. He advises the endonasal, transseptal route, and describes several cases. In one, the vision did not improve after the operation until the man gave up smoking entirely, although he had never smoked much. The retrobulbar neuritis in this case was bilateral, and Botey warns that this suggests some general cause rather than a local sinusitis. The sinusitis cases are generally unilateral.

Medicina Ibera, Madrid

19: 97-120 (Aug. 1) 1925

*The Nephritis Mask of Thyroid Insufficiency. J. C. Mussio Fournier.—p. 97.
Dyes in Therapeutics. M. Aceña.—p. 98. Cont'n.

The Nephritis Mask of Thyroid Insufficiency.—Mussio Fournier states that he has encountered cases of apparent chronic nephritis, and treated as such for months or years without benefit, but the symptoms all disappeared under thyroid treatment. The main symptoms are slight anemia, a tendency to somnolency, slight albuminuria with casts and headache, dizziness and numbness of the fingers. There may be slight puffiness of the eyelids in the morning and, in women at the menopause, the arterial tension may be high. Restriction of salt and protein in the diet gives no results. The endocrine disturbances may affect the metabolism of water. The diagnostic criterion is the success of thyroid treatment.

Revista Médica Latino-Americana, Buenos Aires

10: 985-1090 (June) 1925

*False Roentgenologic Aortitis. R. A. Bullrich.—p. 985.
*Gerodermia and Eunuchoidism. R. A. Izzo.—p. 988.
*Amebic Dysentery in Argentina. S. E. Parodi.—p. 1005.
*Surgery of the Skull in Ancient Peru. E. Bello.—p. 1010.
*Meningococcus Meningitis in Chile. M. A. Sepúlveda R.—p. 1047.

Blunders in Diagnosis of Aortitis.—Bullrich protests against the assumption of aortitis based on the roentgen findings alone. They are liable to be misleading.

Eunuchoidism and Gerodermia in Women.—Izzo describes with illustration a case of eunuchoidism with dystrophy of the skin and genitals in a woman, aged 38, who seemed to be over 60, and presented symptoms suggesting thyroid insufficiency and perverted pituitary function, with curvature of the spine and genu valgum. In another case the man, aged 66, presented gerodermia of the genital dystrophia type with the same clinical picture as the woman. The two cases confirm the gerodermia variety of eunuchoidism, and its practical identity in men and women, although in the latter it should be called ovarodystrophic gerodermia.

Intestinal Parasites in Argentina.—Parodi states that in 1,071 cases in which the stools were examined, the ameba was found in 204 during the four years of the examinations, that is, in 19 per cent.; and 11.3 per cent. were carriers without symptoms of dysentery at the time. Trichomonas was found in 5.98 per cent., the blastocystis in 5.79 per cent., and giardia in fifty-seven of the 1,071 cases.

Surgery of the Skull in Ancient Peru.—Bello gives an illustrated description and diagrams of the holes made in the Inca skulls in ancient Peru, with the present conceptions of their origin and the tools with which they were made. He thinks there can be no doubt that they represent therapeutic trephining openings made on the living skull. The instruments were stone at first, but later metal instruments were used. This therapeutic trephining dates from the period before the Inca dominion. One of the skulls shown has three of these openings. This article was presented at the recent Pan-American Scientific Congress at Lima.

Epidemic Meningitis in Chile.—Sepúlveda states that until October, 1923, meningococcus meningitis was unknown in Chile. That month the first two cases were encountered at Santiago, and in the same month a year later two others. The disease was probably imported by carriers. Serotherapy was applied early, but three of the patients died.

Revista Yucateca de Derm. y Parasitología, Merida

1: 33-72 (Aug. 15) 1925

*Strongyloidosis in Yucatan. S. Figueroa.—p. 33.
Hookworm in Yucatan. V. Rodríguez A.—p. 38.
*Mal del Pinto in Yucatan. R. Romero.—p. 46.

Creeping Disease.—The larva of strongyloides was found in the lesions in the leg of a boy, aged 5.

Pinto in Mexico.—Romero says that in Yucatan the mal del pinto is endemic and it occurs in three forms: white or pinkish patches of depigmentation of the skin, which begins in the hands or the genital organs but may affect in time any part of the body; white, with a preceding excessive pigmentation; this form occurs mostly in the hands. The third form is white patches which begin in the face. Numerous photomicrographs show the different aspects of these forms and the spores of the three varieties. The disease is prevalent in several states in Mexico, Tabasco, Chiapas, Veracruz, Pueblo, Guerrero and the federal district.

Semana Médica, Buenos Aires

2: 109-164 (July 16) 1925

Trachoma. A. D'Alessandro.—p. 109.
Electrocardiography of Paroxysmal Tachycardia. Goyena.—p. 122.
*Direct Vision in Own Eye of Blood Corpuscles. Fortin.—p. 126.
*Orthostatic Albuminuria from Ptosis. Martini and Comas.—p. 129.
Chronic Tetany of Intestinal Origin. Siffredi and de Rabinovich.—p. 133.
Comparison of Means to Measure the Blood Pressure. Tobias.—p. 137.
Present Trend in Penology. V. Delfino.—p. 141.

Direct Vision of Circulation in One's Own Eye.—Fortin here describes the application of this autoretinoscopy to the study of arteriosclerosis, aortic insufficiency, glaucoma and capillary derangement.

Orthostatic Albuminuria.—Martini and Comas report the case of a girl, aged 13, who for five years had presented albuminuria which had been assumed to be of the orthostatic type. Roentgenologic examination finally revealed atony and defective motor functioning of the stomach, with general splanchnoptosis. After correction of the ptosis by dieting and an abdominal bandage, the albuminuria disappeared. It had previously resisted all treatment.

Siglo Médico, Madrid

76: 129-152 (Aug. 8) 1925

*An Intra-Orbital Tumor. A. Castresana.—p. 129.
Radium Treatment of Cervix Cancer. S. Monmeneu Jorro.—p. 134.
History of Medicine in Spain. A. Pulido Fernández.—p. 136.

Sarcoma in the Orbit.—In Castresana's case the large fibrosarcoma in the orbit of the boy, aged 11, had caused no symptoms except the direct exophthalmos and atrophy of the papilla from the compression. The tumor had been growing for two years, and it was removed in its capsule. It weighed 16.3 gm.

Deutsche medizinische Wochenschrift, Leipzig

51: 1471-1512 (Sept. 4) 1925

Obstetrical Remarks. A. Döderlein.—p. 1471. Idem. W. Hannes.—p. 1481.
Treatment of Fracture of the Femur Neck. W. Anschütz.—p. 1473.
The Comparative Pathology of Leukemias. C. Hirsch.—p. 1475.
Dietetic Treatment of Pyelocystitis in Childhood. H. Aron.—p. 1477.
The Art of Prescribing. K. Schübel.—p. 1480.
*Poisoning with Volatile Arsenic Compounds. Joachimoglu and Spinner.—p. 1483.
Treatment of Cerebrospinal Meningitis. K. Ochsenius.—p. 1484.
*Contagiousness of Measles. F. Rohr.—p. 1484.
Essential Thrombopenia. M. Levy.—p. 1485.
Fracture of the Fifth Metatarsal Bone. H. Schütz.—p. 1485.
Insulin Treatment of Diabetes Mellitus. A. Wagner.—p. 1489.
The Frequency of Venereal Diseases. Neumann.—p. 1491.

Poisoning with Volatile Arsenic Compounds.—The recent German literature brought several reports of an acute disease observed exclusively in fishermen of a bay in the Baltic Sea, the so-called Haff. This "Haff disease" was considered to be caused by a poisoning with volatile arsenic compounds. Joachimoglu and Spinner exposed guinea-pigs and mice for from fifty to fifty-two days to the arsenic compounds which are liberated by cultures of *Penicillium brevicaule*. No symptoms or anatomic evidences for arsenic poisoning were observed in these animals. The authors conclude on this ground that the Haff disease has very probably some other etiology.

Contagiousness of Measles.—Rohr reports some epidemiologic data which emphasize anew the clinical observation that measles is very much more contagious in the usually not recognized initial stage than in the stage of eruption.

51: 1513-1554 (Sept. 11) 1925. Partial Index

Skin Diseases and Endocrine Disturbances. C. Schumacher.—p. 1513.
*Testing the Virulence of Vaccines. H. A. Gins.—p. 1515.
*Periarterial Sympathectomy. F. Brüning.—p. 1516.
Agranulocytosis. H. Licht and E. Hartmann.—p. 1518.
Hysteric Disturbances Following Trauma. R. Weichbrodt.—p. 1520.
*Sedimentation Test After Vaccination. O. Connerth.—p. 1525.
Eczema and Uric Acid Diathesis. Kromayer.—p. 1527.
Local Anesthesia by Chemical Agents. K. Praetzelt.—p. 1528.
The Action of Bile Acids. Breithaupt.—p. 1529.
Treatment of Retention of Decidua. H. Baumm.—p. 1529.

A Virulence Test for Smallpox Vaccine.—The disease caused by the introduction of vaccine into the cornea of a guinea-pig has a strictly regular and uniform course. Gins advocates, on the ground of these observations, the use of the intracorneal injection into guinea-pigs as a method for standardization.

Periarterial Sympathectomy.—After three years of experience with this operation, Brüning believes that the divergent results after it must be explained by a difference in the functional state of the sympathetic nerve system. If the tonicity of the system is pathologically increased, the result of the operation is definite and lasting; if the operation is done on a normal sympathetic nerve, the desired result will be only temporary.

Sedimentation of Erythrocytes After Vaccination.—The sedimentation rate is increased following vaccination. The increase parallels the temperature curve and the leukocytosis. Connerth found that the sedimentation rate is only quantitatively different after cutaneous, intracutaneous, and subcutaneous vaccination.

Klinische Wochenschrift, Berlin

4: 1713-1752 (Sept. 3) 1925. Partial Index

Prevention and Treatment of Addictions. E. Joël and F. Fränkel.—p. 1713.
*Immunobiologic Studies in Measles. W. Keller and E. Moro.—p. 1719.
*Experimental Fat Embolism. F. Paul and F. Windholz.—p. 1722.
Trypanocidal Substances in Infants. Neumark and Pogorschelsky.—p. 1724.
Diabetes and Autohemotherapy. F. Külbs.—p. 1725.
Condylomas Simulating Cancer. A. Buschke and L. Loewenstein.—p. 1726.
The Electrocardiogram After Insulin. E. von Haynal.—p. 1729.
*Are Bacilli Killed by Staining? A. Schmidt.—p. 1731.
Carbohydrate and Phosphate Metabolism. J. Abelin.—p. 1732.

Dose of Epinephrin for Drip Administration. P. Trendelenburg.—p. 1732.
Hyperglycemia Following Levulose and Carbohydrate-Phosphate Administration. J. Abelin and E. Goldener.—p. 1733.
Paralysis and Neuropathic Constitution. M. Flesch.—p. 1733.
The Treatment of Exophthalmic Goiter. F. Klewitz.—p. 1734.

Immunobiologic Studies in Measles.—The serum from convalescent measles patients is most efficient seven to nine days after the drop of the temperature; before this time it has no immunizing effect. Keller and Moro believe that this is due to the fact that there are two different antibodies effective in measles: one is a lysin, which according to Pirquet liberates the toxic substances from the virus, and a second one, which works like an antitoxin against these toxins. Consequently, this antitoxic antibody appears only a considerable time after the virus has been subjected to the lytic action of the first. This theory received experimental support through the fact that convalescent serum injected subcutaneously before the eruption prevents the measles exanthem (a product of the virus toxin), at the site of the injection.

Experimental Studies on Fat Embolism.—Rabbits which are repeatedly injected intravenously with sublethal amounts of fat show an enormous rise of the nonprotein nitrogen and a considerable drop of the blood sugar. Histologically, all the capillaries contain fat droplets, especially in the renal glomeruli; the liver is free of glycogen, and shows severe degenerative changes. Paul and Windholz undertook their experiments after the death of a woman under the picture of uremia following a fracture of the femur. Necropsy revealed a generalized capillary fat embolism.

Are Stained Bacilli Killed?—Schmidt found that various pathogenic bacilli are still viable after the usual heat fixation and staining with alcoholic or aqueous solutions of anilin dyes. In the gram process, however, the micro-organisms are killed, very likely by the action of the iodin.

Medizinische Klinik, Berlin

21: 1329-1370 (Sept. 4) 1925

Age and Vegetative Nerve System. F. Glaser.—p. 1329.
A Survey on Research in Blood Groups. W. Dölter.—p. 1333.
*Simultaneous Treatment with Various Agents. A. Strasser.—p. 1337.
*Detection of Hormones in the Blood. G. Peritz.—p. 1342.
Allergy and Treatment of Gonorrhea. S. Jessner.—p. 1344.
Functional Disorders as Cause of Constitutional Anomalies. L. Borchardt.—p. 1347.
Bilateral Pneumothorax in a Woman. I. W. Samson.—p. 1348.
Roentgen Rays and Tumors. C. Schoenhof.—p. 1350. C'cn.
*The Colloid of the Thyroid in Children. M. Frank.—p. 1353.
The Obstetric Breviary. F. Eberhart.—p. 1355. C'cn.
Review of Recent Literature on Parasitology and Bacteriology. H. Ziemann.—p. 1356. Conc'n, p. 1399.

Simultaneous Therapy.—Strasser emphasizes the importance of treating a disease simultaneously with various therapeutic agents. Quoting as examples bronchial asthma and mucous colitis, he explains in the first instance the synergistic action of induced perspiration, internal administration of potassium iodid, and the intravenous injection of calcium chlorid, and in the second instance of coarse food, atropin and papaverin, and hot applications.

Bock's Demonstration of Hormones in the Blood.—Bock found that in the juice of endocrine glands double refractive bodies can be found which rotate polarized light in a strictly specific degree. The same bodies can be found in the blood. Peritz reinvestigated these findings, and arrived at the same conclusions. He believes that the clinical application of Bock's method will prove very valuable.

The Colloid of the Thyroid Gland in Childhood.—Frank found that the colloid of the thyroid gland from children gives different microchemical reaction from the colloid in adults. The line of demarcation appears to be around the age of 8.

21: 1371-1408 (Sept. 11) 1925. Partial Index

Iodin Treatment of Hyperthyroidism. A. Biedl and Redisch.—p. 1371. Cont'd.
Adequate Treatment of Rheumatic Affections. W. His.—p. 1375.
*Vaccination Encephalitis. F. Lucksch.—p. 1377.
Congenital Syphilis and Tuberculosis. B. Epstein.—p. 1381. Cont'd.
Early Diagnosis of Congenital Dislocation of the Hip Joint. H. Hilgenreiner.—p. 1385. Cont'd.
*Resistance of Human Hemoglobin. H. Bischoff.—p. 1394.
Recent Works on Intestinal Tract. W. Wolff.—p. 1398.

Encephalitis Following Vaccination.—Lucksch observed several children who died under the picture of an epidemic encephalitis which began about ten days after vaccination. Necropsy revealed slight reddening and edema of the brain and the meninges and perivascular round cell infiltrations in the mesencephalon and in the medulla. Rabbits which were injected in the cornea with the vaccine used in the diseased children, developed in 50 per cent. of the cases, a typical encephalitis. It cannot be decided as yet whether the vaccine virus may be identical with an encephalitis virus, or whether the vaccination aroused in these cases a latent encephalitis infection. Similar observations have recently been published in Switzerland and in Holland.

The Resistance of Human Hemoglobin.—Bischoff found that the hemoglobin of adult men is slightly more resistant to the action of sodium hydroxid and acetic acid than that of adult women. In pregnant women shortly before delivery the resistance against sodium hydroxid increases. The hemoglobin of the cord blood is 130 times more resistant than the maternal hemoglobin.

Münchener medizinische Wochenschrift, Munich

72: 1543-1584 (Sept. 11) 1925

*Localized Sympathicotonia and Epilepsy. O. Muck.—p. 1543.
Traumatic Glioma. Volland.—p. 1544.
Tertiary Syphilis and Strictures of Female Urethra. F. X. Bernhart.—p. 1547.
Detection of Impurities in Arsphenamin. A. Hirsch.—p. 1549.
Chemical Treatment of Lupus. W. Vogel.—p. 1552.
Administration of Tuberculin. P. Mayer-Umhöfer.—p. 1553.
Autoserum Treatment. H. Rogge.—p. 1555.
*Acute Leukopenia After Intradermal Injections. F. W. Müller.—p. 1556.
Hematemesis in Chronic Gastritis. R. Korbsch.—p. 1558.
Nervous Symptoms Caused by Gallbladder Disease. M. Lapinsky.—p. 1560.
Ateriosclerotic Disturbances of the Voice. P. Ziegelroth.—p. 1560.

Localized Sympathicotonia and Epilepsy.—Muck observed in fifty-six of 100 patients suffering from epilepsy the sign he described in sympathicotonic migraine: When the mucous membrane of the nose is slightly sprayed with epinephrin and irritated by touching with a sound, white lines appear, which persist even after the epinephrin ischemia disappears. The sign is not constant.

Acute Leukopenia After Intradermal Injections.—F. W. Müller's experiments on the leukopenia following intracutaneous injections, and especially the control counts without injections, suggest that great caution is necessary before accepting the conclusions of E. F. Müller.

Wiener klinische Wochenschrift, Vienna

38: 1003-1026 (Sept. 10) 1925. Partial Index

*A Case of Rat-Bite Fever. A. Winkelbauer.—p. 1003.
The Function of the Omentum and the Peritoneum. W. Goldschmidt and W. Schloss.—p. 1006.
*Infected Teeth and Nervous Diseases. F. Schenk.—p. 1006.
The Clinical Course of Bronchial Cancer. H. Strunz.—p. 1008.
Phlegmonous Streptococcic Gastritis. Sten von Stapelmohr.—p. 1010.
Diathermy. E. Freund. Supplement.—pp. 1-16.

Rat-Bite Fever.—Winkelbauer reports the case of a boy, aged 14, with rat-bite fever, which is the first case known to occur in Austria.

Dental Caries and Chronic Nervous Diseases.—Schenk draws attention to the fact that patients with nervous afflictions such as multiple sclerosis, tabes, paralysis, and parkinsonism show in a far higher percentage dental caries than other patients or normal persons.

Zeitschrift für klinische Medizin, Berlin

102: 1-127 (Aug. 20) 1925

Oxygen Requirement During Muscular Exercise. W. Glose.—p. 1.
Metabolism After Blood Transfusions in Pernicious Anemia. J. Weicksel.—p. 19.
*Sedimentation Test in Internal Diseases. F. M. Groedel and G. Hubert.—p. 31.
Nature of Sedimentation of Erythrocytes. M. Georgopoulos.—p. 46.
*The Rumpel-Leede Phenomenon in Hypertension and Endocarditis Lenta. N. Weissmann.—p. 53.
*Cholesteremia in Arteriosclerosis. A. L. Mjassnikow.—p. 65.
The Estimation of Bile Acids. F. Raue.—p. 79.
*Blood Pressure at High Altitudes. M. Grossmann.—p. 86.

*Gastroscopic Examination of the Pylorus. W. Sternberg.—p. 102.
The Third Normal Heart Sound. M. M. Gubergritz.—p. 109.
Valsalva's Experiment Causing Attacks of Tachycardia. Galli.—p. 120.

Sedimentation Rate of Erythrocytes.—Groedel and Hubert applied this test to 304 patients, and found that in almost any internal disease and in normal persons the sedimentation rate may be normal or increased. In cases with a normal number of erythrocytes and with a high hemoglobin content, the rate is usually normal or only slightly accelerated. There is no parallelism between the speed of sedimentation and the viscosity of the blood.

Rumpel-Leede Phenomenon in Hypertension and Endocarditis Lenta.—The application of pressure around the arm produces minute petechial hemorrhages below the area of the compression in patients with scarlet fever. This Rumpel-Leede phenomenon is never observed in normal persons with the exception of women during the menstrual period. Weissmann reiterates the theory that the phenomenon is caused by pathologic changes in the capillary endothelium. He found it to be positive in most patients with endocarditis lenta and with essential hypertension.

Cholesteremia in Arteriosclerosis.—Mjassnikow found a considerable increase of the blood cholesterol regularly only in cases with arteriosclerosis, in an advanced stage, in the aorta and the coronary arteries. In patients with milder forms of arteriosclerosis, the blood cholesterol was increased only in 50 per cent. of the cases. In subjects in whom the process was localized in the kidneys and in the peripheral arteries, and in those with hypertension, normal amounts were found. These studies are based on the examination of seventy patients.

Blood Pressure at High Altitudes.—The rise in blood pressure at high altitudes can be counteracted in many persons by increasing the oxygen tension. Grossmann concludes from his observation that the rise must be due to a deficiency in oxygen. The point attacked is the tissue of the vasomotor center; the arterial blood may show a normal oxygen tension, and acidosis may not be demonstrable.

Gastroscopy.—Sternberg describes a gastroscopic method which makes direct observation of the pyloric function possible.

Zeitschrift für Krebsforschung, Berlin

22: 379-453 (Aug. 22) 1925

*Locksmiths' Cancer. H. Stahr.—p. 379.
*Tumor Production by Nematode. S. Puder.—p. 384.
Chemical and Anaerobic Tumor Production in Plants. Auler.—p. 393.
Spontaneous Sarcomatosis in a Rat. H. Auler and E. Neumark.—p. 404.
The Effect of Electropic Substances in Experimental Malignancies. L. Karczag and L. Németh.—p. 407.
The Structure of Cancers. E. Krompecher.—p. 410.
Pathology and Clinic of Myelomas. H. D. v. Witzleben.—p. 422.
A Lipoplastic Sarcoma with Metastases. J. H. Nienhuis.—p. 434.
The Tumor-Producing Bacteria. Reichert.—p. 446.

Locksmiths' Cancer.—A locksmith, whose arms had been specially exposed for a long time to radiating heat, developed a squamous cell carcinoma on the right arm. Stahr believes that the repeated occupational thermal irritation was responsible for the production of the malignancy.

Tumor Production by a Nematode.—Puder reinvestigated the findings of Kopsch, who claimed that the nematode *Rhabditis pellio* produced cancer in the frog. Puder found that the nodules produced by this parasite were not true malignancies, but granulomas.

Zeitschrift für urologische Chirurgie, Berlin

18: 1-124 (July 31) 1925

The Renal Excretion of Water, Sodium Chlorid and Urea. J. Goldberger.—p. 1.
Fistulas Between Intestines and Bladder in the Female. J. Schiffmann.—p. 23.
*Clinical Aspect of Nephrectomy. A. Weiser.—p. 29.
Bilateral Anomaly of the Urinary Tract. A. Weiser.—p. 53.
Hydronephrosis in a Double Kidney. A. W. Smirnow.—p. 61.
*Test for Urinary Infection. O. Weltmann and K. Haslinger.—p. 73.
*Ganglion Cells in Pelvis and Ureter. Hryntschak.—p. 86.

Nephrectomy.—Weiser reports the results of 149 nephrectomies performed at Hochenegg's clinic. Of thirty-eight patients who were operated on for malignancies, ten died; out of 111 nephrectomies performed on various other indications, eight died. The importance of thorough preliminary examinations and of functional tests is emphasized.

The Nitrite Reaction in the Urine as Indicator of Infection.—Most of the organisms which are found in urinary infections produce nitrites. Weltmann and Haslinger discuss in detail how a simple reaction for nitrites will greatly help the diagnosis of urinary infections.

Ganglion Cells in the Urinary Tract.—Hryntschak examined a large number of serial sections of the renal pelvis, ureter, and of the intramural part of the ureter, in man, pigs, dogs and cats, with a special staining method for ganglion cells. He concludes that the mucosa and the muscular parts of the organs mentioned above do not contain any ganglion cells.

18: 125-236 (Sept. 9) 1925

*Alkali and Acid Excretion in the Urine. G. v. Pannewitz.—p. 125.
The Internal Topography of the Kidney. F. Fuchs.—p. 164.
Nephrotomies on Rats. M. Ernst.—p. 181.
Atony of the Ureter. N. N. Elansky.—p. 184.
Fibromyomas of the Bladder. W. S. Kostjurin.—p. 197.
*Spermatogenesis in Disease of the Epididymis. N. I. Kukudshanow.—p. 205.
*Actinomycosis of the Bladder. A. Weiser.—p. 211.

Renal Excretion of Acids and Alkalis.—The urine which is excreted by the glomeruli is neutral. The tubuli resorb some of the excreted alkali; the result is the normally acid urine. Irritation or disease of the glomeruli results in an increased excretion of acids. If the tubular apparatus of the kidney is diseased, or injured by pressure due to pyelitis, renal stones, tumors, or hydronephrosis, the tubuli are not able to resorb alkali; the result is a neutral urine. Von Pannewitz believes that the examination of the p_H value of the urine affords very significant data in the functional diagnosis.

Spermatogenesis in Diseases of the Epididymis.—Kukudshanow found that occlusion of the spermatic duct leads to regeneration rather than degeneration of spermatogenesis. He emphasizes on this ground the importance of conservative operative procedures.

Actinomycosis of the Bladder.—The actinomycotic infection of the bladder leads frequently to the formation of a group of fistulas of the bladder wall. Before perforation takes place. a bullous edema is observed, which does not allow of a specific diagnosis. Weiser believes that only the cystoscopic findings of fistulas as described above and the microscopic and cultural examination suffice to make the definite diagnosis.

Zentralblatt für Chirurgie, Leipzig

52: 1985-2048 (Sept. 5) 1925

Technic for Bile Duct Surgery. E. Payr.—p. 1986.
Cardiolysis in Treatment of Heart Disease. E. Haim.—p. 1990.
*Ligation of Jugular Vein in Pyemia. E. Melchior.—p. 1993.
Treatment of Aseptic Wounds. H. Reinberg.—p. 1998.
Immovable Ptosis of the Gallbladder. B. O. Pribram.—p. 2002.

52: 2049-2112 (Sept. 12) 1925

Secondary Enterostomy in Ileus and Peritonitis. E. Melchior.—p. 2050.
Operation for Hallux Valgus. M. Hackenbroch.—p. 2051.
Plastic Treatment of Femoral Hernias. H. Krüger.—p. 2052.
Internal Intestinal Fistulas. F. Starlinger.—p. 2053.
Operative Correction of Sternoclavicular Dislocation. Marxer.—p. 2055.
Encephalography. H. Reinberg.—p. 2057.
Signs of Congenital Origin of Inguinal Hernias. Bayer.—p. 2059.

Ligation of the Jugular Vein in Pyemia Following Infectious Sore Throat.—In several cadavers, after death from sepsis following angina, a thrombophlebitis process was discovered in the veins of the tonsils, extending into the jugular vein (C. Fraenkel). Melchior ligated the jugular vein in two patients with thrombophlebitis and sepsis after acute tonsillitis. Both patients recovered.

Zentralblatt für Gynäkologie, Leipzig

49: 2001-2048 (Sept. 5) 1925

Fat Migration in Dermoid Cysts. O. Frankl.—p. 2002.
Rotation of the Head During Delivery. R. Demme.—p. 2004.
Direct Blood Transfusions. A. Beck.—p. 2010.
*Treatment of Postpartum Hemorrhage. I. v. Büben.—p. 2013.
A Case of Interstitial Pregnancy. V. Lebedeff.—p. 2018.
Operative Treatment of Double Vagina. G. T. Zomakion.—p. 2021.
"Obstetric Examination by the Rectum." T. Johannsen.—p. 2026.

Treatment of Postpartum Hemorrhage.—Von Büben comments on the conflicting views as to the causes of inertia of the uterus after delivery and whether active or expectant treatment should be the rule. In the last twenty years in the Budapest Maternity there were 163 cases of grave hemorrhage among 35,878 term deliveries, that is, 0.45 per cent., and thirty of the women died, thus, 0.08 per cent. of the entire number. If the placenta has been expelled, pituitary extract is given by the vein, and its transient action is reenforced by ergot intramuscularly. The extended legs are crossed, and the fundus of the uterus is held firm. The vagina is rinsed out with hot permanganate solution (0.1 per cent. at 50 C.) to stimulate the cervical ganglion. If this fails, the uterus is rinsed out with a weaker solution of the same, but the douche can is held low to refrain from dislodging the thrombus by the force of the jet. Ice water would be more of a stimulus but would chill too much. Bimanual compression of the vagina and abdominal wall help to arrest the supply of blood to the uterus, or the hand in the vagina kinks the uterus near the internal os. The Dührssen tamponade is of course the most effectual measure, but he never packs the vagina alone; he always includes the uterus but never packs it tight enough to interfere with its contractions. He never applies mechanical pressure directly to the aorta, fearing injury of intestines or ureter and heart disturbance from blocking the circulation. Even if the supply of arterial blood is cut off by the Momburg belt or other device, the hemorrhage would only increase as the venous blood is prevented from returning to the heart.

Zentralblatt für innere Medizin, Leipzig

46: 833-856 (Sept. 5) 1925

*Syphilitic Nephritis. H. Burgerhout.—p. 834.

46: 857-912 (Sept. 12) 1925

The Light Colored Urine of Contracted Kidneys. E. Becher.—p. 857.
Møllgaard's Treatment of Tuberculosis. F. Koch.—p. 861.
Medical Criticism of Mann's "Zauberberg." G. Zickgraf.—p. 869.
The Structure of the Capillaries. M. Volterra.—p. 876.

Syphilitic Nephritis.—When in the course of syphilis a nephritis is observed, it is hardly possible to prove that the latter is caused by the syphilitic infection. Burgerhout believes that in cases in which the syphilitic infection undoubtedly preceded the nephritis, and which are characterized by high albumin content, reduced secretion of urine, normal and low blood pressure, and the absence of red cells in the urine indicating a tubular affection (nephrosis), we are justified in diagnosing the disease as syphilitic nephritis. Specific treatment may or may not be successful.

Časopis lékařů českých, Prague

64: 1249-1284 (Aug. 29) 1925

*Roentgen-Ray Treatment of Hyperthyroidism. B. Prusik and L. Volicer. —p. 1249.
*Active and Simultaneous Immunization. J. Saidl.—p. 1256.
Epidemic of Typhus Canum. S. Sýkora.—p. 1265.
*Changes of Tubercle Bacilli During Treatment. V. Šichan.—p. 1269.
Diagnosis of Typhoid in Children. J. Říha.—p. 1276. C'cn.
*Sympathectomy in Keratitis Bullosa. A. Gala.—p. 1278.

Roentgen-Ray Treatment of Hyperthyroidism.—Prusik and Volicer irradiated the thyroid in fifteen patients with exophthalmic goiter and in three with hyperthyroidism. One of the patients died; the others improved considerably. Five of the exophthalmic goiter patients may be considered as cured. The basal metabolism never decreased before the third week of the treatment.

Active and Simultaneous Immunization.—Saidl had good results with active polyvalent immunization of pregnant women about a month before the expected term. Immunization at the time of delivery seemed to be without value.

Changes of Tubercle Bacilli During Treatment.—Šichan describes changes of shape and staining of tubercle bacilli in the sputum. This seems to be in some relation to the prognosis of the disease.

Sympathectomy in Keratitis Bullosa. — Gala's patient suffered from grave relapsing bullous keratitis in an eye which had been injured five years before. The patient recovered after extirpation of the superior cervical ganglion.

64: 1285-1320 (Sept. 5) 1925

Pubic and Sacral Occipital Position. Saidl.—p. 1285.
Intermittent Claudication of the Brain. O. Janota.—p. 1291.
Recurrence of Papillomas in the Larynx. D. Jelinek.—p. 1298.
*Acute Dilatation of the Stomach. V. David.—p. 1302.

Acute Dilatation of the Stomach.—David describes four cases of acute dilatation of the stomach. All of these patients had bradycardia.

Prophylaktitcheskaia Medicina, Charkoff

4: 1-182 (July) 1925. Partial Index

"Disinfection Problems." I. Gah.—p. 1.
*The Extinction Phenomenon. Zlatogoroff and V. Derkach.—p. 19.
Bacteriophages and Filtrable Viruses. N. Gamaley.—p. 28.
*Vaccine Treatment of Dysentery. K. Gluhoff.—p. 31.

The Extinction Phenomenon in Scarlet Fever.—The aim of Zlatogoroff and Derkach's experiments was to establish the nature of the antigen substances in the serum responsible for the Schultz-Charlton blanching phenomenon in scarlet fever. Rabbits and monkeys were infected with emulsions and filtrates of substances from scarlet fever patients. The extinction-inducing property was most pronounced in serums from convalescent animals, on the eighth or tenth week after infection. The extinction phenomenon was never obtained with monkey serum. With serum from rabbits injected with emulsions, the phenomenon was positive in 80 per cent. and always negative with serums of those injected with filtrates. A pronounced blanching phenomenon could be induced with serum from animals immunized by streptococcus toxin or living cultures of the bacillus. The production and accumulation of the Schultz-Charlton substances was slower than that of ordinary amboceptors. A high agglutination titer for the scarlet fever streptococcus always paralleled a pronounced extinction phenomenon from serum. No relation was evident between the appearance of the Schultz-Charlton substances and the antigen property of the filtrable scarlet fever virus. The blanching of the scarlet fever eruption by human and animal serums thus seems to be a specific local immune reaction to the streptococcic toxin.

Serum and Vaccine Treatment in Dysentery.—Gluhoff reports that specific serotherapy, used in the beginning of an epidemic of bacillary dysentery in 1924, proved ineffectual, while administration of a dysentery vaccine was followed by the recovery of the eight patients. The results of the treatment were demonstrated by Kravkoff's method based on the reaction of vessels in the isolated ear of rabbits to the serum from dysentery patients. Since the suprarenals are affected in dysentery, the patient's serum, poor in epinephrin, induces only a slow contraction of the vessels. As recovery progresses the contraction occurs more rapidly and strongly. A single oral dose of 200 or 300 thousand millions of dysentery bacilli was well tolerated, and induced notable improvement within twenty-four hours. Recurrence was prevented by continuing the vaccine treatment for a time after the stools were normal. A liquid vaccine, treated with alcohol, was used, which has not the disagreeable taste of the vaccine tablets.

Russkaia Klinika, Moscow

3: 307-482 (March) 1925. Partial Index

*Biochemical Treatment of Epilepsy. V. Horoshko.—p. 307.
*Modified Weigert Stain. Maikoff and Shargorodsky.—p. 360.
Surgical Complications of Paratyphoid N. Sokoloff.—p. 363.
Diaphoresis Treatment of Nephritis. A. Ziukoff.—p. 403.
Beneficial Action of Trunecek's Serum in Three Cases of Arteriosclerosis. O. Travin.—p. 415.
*Postoperative Acetonuria. M. Rabinovitch.—p. 431.

Injections of Brain Emulsion in Epilepsy. — Horoshko applied this treatment in twenty cases of epilepsy of long standing with frequent seizures, refractory to the usual treatment. He used a 10 per cent. emulsion of brain from rabbits or antirabies vaccine. From fifteen to thirty daily subcutaneous injections, each at a dose of 1 c.c. were given. The treatment was repeated after from one to four weeks. Good results were obtained in certain cases by ninety or 100 injections, given daily with short intervals. After a few injections seizures became less frequent; the effect was marked on petit mal which often completely disappeared. The psychic condition had been greatly improved. Aggravation of the disease was noted only in one case of post typhus epilepsy with grave lesions of the brain. The author considers the brain emulsion as a specific protein therapy. He emphasizes that in 50 per cent. of all his epileptic patients the blood coagulation time was short before the seizures; afterward, in about 33 per cent. the coagulation time became longer.

Simplified Method for Weigert's Staining of Nerve Fibers.—The advantage of their technic, Maikoff and Shargorodsky say, is that the staining procedure is simpler and more rapid. Besides the myelin, also the chromatophil masses of cells are visible in the same slide, without additional staining. The slides are treated with the chromate as usual and then stained with picrofuchsin, not with hematoxylin.

Factors of Postoperative Acetonuria.—Rabinovitch believes that the severe diet as well as emotional shock preceding the operation play an important part in the occurrence of postoperative acetonuria. The latter does not depend on the amount of blood lost, the kind of anesthetic, nor on the duration of the operation. Young persons and women seem more predisposed to postsurgical acetonuria. This complication is not grave.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 993-1084 (Aug. 29) 1925

Case of Leukemia of the Skin J. H Broers—p. 994.
*Connection Between Psychic and Physical Processes. A. A. Weinberg.—p 1002
Sensitivity to Insulin on Different Foods Grevenstuk et al.—p. 1038.
*Two Cases of Weil's Disease W Schuffner and Ruys.—p. 1020.
Case of Toxic Lymphangitis D G Cohen Tervaert—p. 1026

Connection Between Psychic and Physical Processes.—Weinberg attacks this problem from the level of the consciousness. Study of thirty normal subjects confirmed that, when this level is high, the excitability of the sympathetic nervous system is high, and when it is low, the parasympathetic system predominates On account of this psychic-physiologic parallelism, psychopathies require improved psychiatric technic, but they also require physical and chemical measures, including organotherapy, to correct the abnormal conditions in the vegetative system. The third element to be considered in treatment is the primary anomaly in the endocrine system, as in myxedema or eunuchoidism, mainly responsible for the psychopathy in the first place. Chronic emotional conditions are liable to entail changes in the vegetative system which, in case of a congenital or acquired substandard condition of any part of this system, may bring on diabetes, gout, hypertension or other grave disease. A combination of psychotherapy and organotherapy may prove useful here also.

Weil's Disease.—In the three cases recently observed at Amsterdam, the disease developed nine or eleven days after submersion in or working on a foul ditch. Wild rats, that were spirochete carriers when caught, were kept by Schüffner and Ruys for up to twenty-one months, without losing the spirochetes from their urine. Jaundice was intense in the three cases, and two terminated fatally. In the recent swimming pool epidemic at Burg, only 34 per cent. of the seventy-six affected developed jaundice, and none died.

Tijdschrift v. Vergelijk. Geneeskunde, Leyden

11: 185-344 (Sept. 12) 1925. Partial Index

*Globulin in Serologic Reaction. Schuiringa and Kapsenberg.—p. 217.
*Import of p_H for Bacteriology. I. M. Kolthoff.—p. 268.
Tests for Mixing of Milks. E. Hekma.—p. 310.
*Cod Liver Oil Does Not Dissolve Tubercle Bacilli. M. D. Horst.—p. 320.

The Globulin in Serologic Tests.—Schuiringa and Kapsenberg assert that the globulin of a serum giving a positive Sachs-Georgi reaction will give the reaction alone, without the other elements of the serum. The albumin alone has no such power

The Significance of the p_H for Bacteriology.—Kolthoff argues that the p_H at the end of the growth of certain bacteria might be accepted as a constant if all research workers would use the same culture medium and buffer index. Otherwise not.

Alleged Dissolving of Tubercle Bacilli by Cod Liver Oil.—Horst was unable to confirm Lansberg's statements in this line. Tubercle bacilli were not found easily soluble in cod liver oil. The changes in the oil are due to the air and the heating, not to dissolving of the bacilli, even in a year.

Hospitalstidende, Copenhagen

68: 649-672 (July 16) 1925

*Ileus from Meckel's Diverticulum. K. Lehmann.—p. 649. C'cn.
*Experimental Nephritis. J. Jessen.—p 656.
*Extrapyramidal Syndromes. VI. A. Wimmer.—p. 666. C'cn., p. 673.

Ileus for which Meckel's Diverticulum is Responsible.—Lehmann compares a personally observed case with those on record, and emphasizes the importance of differentiating between ileus from strangulation and ileus from obstruction by a constricting mechanism. With the latter, enterostomy might relieve the pressing symptoms and allow the bowel to recuperate before resection. In Ekehorn's statistics of sixty-seven cases, the mortality of this form of ileus was 76 per cent. while it was 91 per cent. in the strangulation cases.

Experimental Nephritis.—Jessen asserts that the contradictory results obtained by various research workers in this line is due to the differences in technic. He has obtained identical results in his own work, injecting rabbits subcutaneously with uranyl acetate by the drip method for three months. In every animal the convoluted tubules showed typical changes in certain special regions. The rabbits developed connective tissue and lymphocyte infiltration in the altered parts of the convoluted tubules, and these in another three months shriveled completely.

Extrapyramidal Syndromes.—Wimmer describes the case of a girl of 14 who for six years had had attacks of brief tonic spasms suggesting epilepsy. The last year there had been for the first time certain athetotic movements in the intervals, with difficulty in swallowing, and tremor, with torsion spasm, the manifestations sometimes resembling the positions in decerebrate rigidity. He queries whether this case should be classed as striatal epilepsy, or as an autointoxication affecting a congenitally substandard portion of the brain, or as defective development of the subcortical grey masses or as an idiopathic torsion spasm.

68: 673-696 (July 23) 1925

*Diastase in Serum and Urine. E. Polack.—p. 681.

Diastase Content of Serum and Urine.—Polack states that the figures he obtained in examination of 100 patients with various diseases and controls were lower than those reported by others elsewhere. He used for the tests a 1 per cent. solution of sodium chlorid; a 0.1 per cent. solution of starch, and a one fiftieth normal solution of iodin, left in contact for one hour at 37 C. The normal index range is from 4 to 16.

68: 697-720 (July 30) 1925

*Etiology of Myopia. E. Holm.—p. 697.
*Iodometric Titration of Small Amounts of Acids. Holbøll.—p. 710.
*Neutrality Regulation in Epileptics. Jensen.—p. 715.

Etiology of Myopia.—Holm presents evidence to show that myopia, although practically always due to an inherited special form of the eye, yet can be classed in two main groups, those in which the myopia becomes manifest without any special strain on the eyes, and those in which it develops only after near reading, acute infectious diseases, or in anemia or congenital syphilis. The excessive forms of myopia belong in the first group, which is a dominant. In the second group, the myopia requires heredity from both parents for it to develop. Myopia from hydrophthalmos or glaucoma forms perhaps a third group.

Iodometric Test for Titration of Acids.—Holbøll warns that the solution of thiosulphate should not be poured on the acid fluid when the amount of acid is small. He adds it to the potassium iodid, as in Hagedorn and Jensen's sugar test, and states that when the time and the amount are constant, the acid response is constant, and is more evident when amounts up to 15 c.c. are used.

Neutrality Regulation in Epileptics.—Jensen reports three cases of genuine epilepsy in which neutrality regulation proceeded normally.

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RECONSTRUCTION AND PLASTIC OPERATIONS ON THE HIP *

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NEW YORK

No other joint offers so great an opportunity for the bone surgeon to indulge his ingenuity as does the hip. Yet there is probably no large joint in which less surgery was undertaken, until the last decade. In fact, although arthrodesis of the knee joint for tuberculosis and other conditions had been frequently undertaken by a large number of surgeons for many years, no one had attempted to devise an operation to arthrodese the hip joint until I brought forward this operation[1] for advanced arthritis deformans (ostearthritis) in 1908.

THE MODERN ARMAMENTARIUM

Four influences—the technically facile fracture orthopedic table, the bone mill, the Smith-Petersen approach to the joint, and the possibility of bone grafting—have led to the development of the extensive amount of plastic operations on the hip now possible, the limits of which to a large degree depend on the ingenuity and experience of the operating surgeon.

The anatomy of the hip is exceptional. It is a ball and socket joint, which makes it possible to move it in every direction; the most powerful muscles of the whole body play on it, so that in the event of fractures near it, displacement by muscle traction, either voluntary or involuntary, may be great, and means other than manual effort and the ordinary hip rest are imperative, both in closed and in open surgery. Moreover, the hip is more deep-seated, and therefore more inaccessible than any other joint. For these combined reasons, it is not only imperative that a fracture orthopedic operating table be available, but also that it be so constructed that the various limb postures required may be quickly obtained and readily maintained with the desired amount of traction, during the course of operation, and postoperatively, during the application of plaster-of-Paris casts. It is exactly these requirements that the Albee table meets.

The modern approach to the joint by the Smith-Petersen incision has widened the field, and has made it possible to do plastic operations that were previously considered impossible of accomplishment.

The bone mill has also contributed to the increased ease of operation, owing to the rapidity of cutting that it renders possible.

Also, the ability to transfer bone from one part of the anatomy to another has had a very great influence in bringing about the success of operations on the hip, as well as in extending the operative possibilities. Bone may be obtained locally, or elsewhere, as from the tibia. The bone graft is of extreme value in selected cases, in operations that aim for mobility, and in those that aim for arthrodesis.

TYPES OF OPERATION

Because of the variety of conditions for which reconstruction and plastic operations on the hip are undertaken, it seems best to discuss them in two general groups, based on the aim of the operation: Group 1, cases in which the operation aims to obtain, retain or improve mobility; and Group 2, those in which arthrodesis of the joint is desired.

OPERATIONS IN WHICH MOBILITY IS DESIRED

Under the head of operations in which mobility is desired fall cases of ununited fracture of the neck of the femur; old arthroplasties with dislocation, congenital dislocation of the hip and acquired dislocations.

UNUNITED FRACTURES OF THE NECK OF THE FEMUR

It still remains true that the bone graft peg operation for ununited fractures of the neck of the femur, for the purpose of restoring the hip as nearly as possible to its original anatomy, offers in selected cases the most favorable results. Its field, however, in my hands, has become much more limited than formerly, especially since the introduction of my reconstruction operation, which consists of removing the head of the femur, performing a plastic on the stump of the neck, and forming a physiologic bone-muscle lever to restore abduction (Figs. 1 and 2).

The reconstruction operation is indicated in all cases in which the nonunion has been of long duration, with considerable erosion of the neck of the femur, on both the capital and distal fragments; especially, if it is associated with a considerable amount of laxity between the fragments, or if there is much shortening. (The latter would necessitate pulling down the distal fragment by means of the orthopedic table, thus bringing a great deal of lateral pressure on the bone graft peg, if that type of operation was used.) The reconstruction operation is also desirable in all cases in which, for any reason, a short convalescence is essential, particularly in older subjects. It affords a very satisfactory amount of motion, in some cases as much as 90 per cent. In cases in which erosion has been extensive, with consequent loss of a considerable portion of the neck of the femur, even though the bone graft operation may be successful, the anatomy of the parts has

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* Read before the Section on Orthopedic Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Albee, F. H.: Arthritis Deformans of Hip: Report of a New Operation, abstr., J. A. M. A. 50: 1553 (May 9) 1908.

suffered, and the range of motion at the hip is necessarily impaired. Moreover, the erosion of the neck and the shortening of the head, sometimes to the degree that it becomes a mere shell, diminish the efficacy of the bone graft in securing motion, and bring about conditions unfavorable to the reception of the bone graft peg. Because of these influences, I now resort to the bone graft operation in not more than 10 per cent. of the ununited fractures that come to me.

TECHNIC OF THE RECONSTRUCTION OPERATION

The head of the femur is removed. The stump of the neck on the distal fragment is rounded, so as to be received with a minimum amount of irritation in the acetabulum. A lever about 4 inches long, including almost the entire trochanter and about one sixth of the diameter of the shaft of the femur, is separated and pried outward, producing a greenstick fracture at the lower end. The mere abduction of the limb, when the patient is held by the Albee table, throws the neck of the femur into the acetabulum.

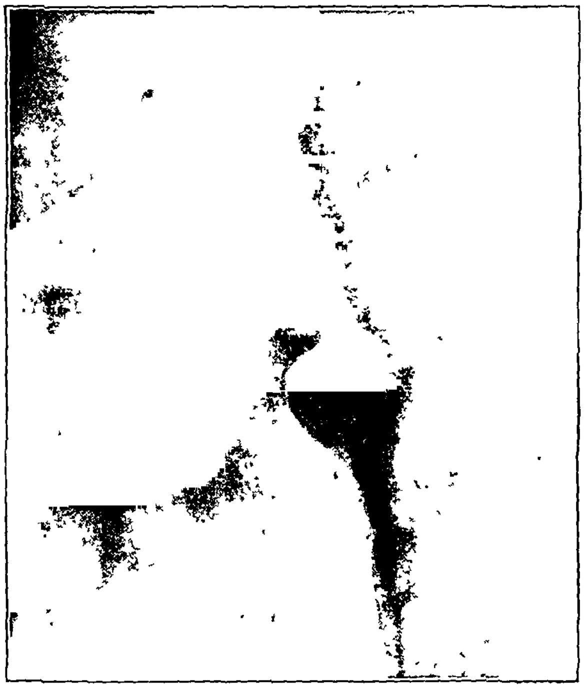

Fig. 1.—Typical case of ununited fracture of the neck of the femur, with loss of most of the neck.

The approach is that devised by Smith-Petersen, and is very similar to the Sprengel approach. The skin incision consists of two parts: (1) from the anterior superior spine directly downward, and (2) from this point over the anterior superior spine directly backward along the crest of the ilium for a distance of 3 or 4 inches. With a scalpel, the fascia lata is severed parallel with the crest of the ilium and sufficiently below it to leave a fascia flap to receive sutures in the approximation of the severed fascia lata at the close of the operation. Then, with the Albee osteotome, used for splitting the spinous processes in the Pott's disease operation, the muscles are stripped down from the side of the ilium by subperiosteal separation, and are separated from one another directly downward from the anterior superior spine The capsule of the hip joint is completely exposed. The joint is entered by a T incision with the stem running directly downward along the neck of the femur. The head of the T is made about three-fourths inch from the rim of the acetabulum, for the purpose of furnishing a cuff of capsule to act as a lining of the outer portion of the joint, and for the neck to rest against when the head has been reconstructed. Care should be taken to make the incision into the capsule sufficiently spacious so that the difficulty of getting the head out of the acetabulum will be minimized. The crucial ligament is then severed by means of a half inch osteotome, and any adhesions of the capsule to the periphery of the head are carefully separated with a scalpel.

The limb is then strongly everted by adjusting the fracture table, so as to make room for the delivery of the head. With two long half-inch chisels or osteotomes, the head is pried out of the acetabulum, with a motion much like that used in eating with chop-sticks: one osteotome is thrust into the inner, and one into the outer substance of the head, and the two are used as levers against the soft parts to pry the head out of place. As soon as the head is delivered, the foot should be inverted by adjustment of the table, so that it points directly upward. Then, with the scalpel, the soft parts are severed in a straight line down on the anterior surface of the trochanter and the outer portion of the shaft of the femur to admit the osteotome that is to split off the lever as indicated in Figure 3 *A*. With the broad Albee spinal osteotome, the bone is severed (Fig. 3 *A*) and pried outward (Fig. 3 *B*). The stump of the neck is then rounded so as to produce a minimum amount of irritation on the acetabulum. The assistant is directed to adjust the table so that the limb is brought to the limit of physiologic abduction at the hip, and at the same time the upper end of the femur is lifted forward and guided into the acetabulum (Fig. 3 *B*). Thus the bone lever is automatically held by the posture in the position shown in Figure 3 *B*.

In the angle between the shaft and the lower end of the graft, small bone grafts obtained from the upper portion of the shaft of the femur may or may not be inserted, to supply additional foci of osteogenesis and to hasten union. The muscles and soft parts should not be separated at all from the bone lever or from the great trochanter. The bone lever is pulled anteriorly. The wound is now ready for closure, with two interrupted sutures of medium kangaroo tendon in the muscles and fascia attached to the bone lever and in the anterior portion of the wound. All dead spaces are overcome by means of continuous suture of No. 1 chromic catgut. The skin is closed by continuous suture of 0 plain catgut. The line of incision and the suture holes are puddled with tincture of iodin, 3.5 per cent. The leg is put up in a long spica, extending from the tips of the toes to well above the costal margin, with the abducted position undisturbed. The plaster is molded so as to hold the upper end of the femur anteriorly, and is kept on for a period of six weeks. The leg is then allowed gradually to resume the normal position, and the bone-muscle lever assumes the relationship shown in Figure 3 *C*. The patient is persuaded to begin walking immediately. Daily massage and manipulation, at both the hip and the knee, are at once instituted, to bring about motion.

ILLUSTRATIVE CASE

The mechanism of my reconstruction operation for ununited fracture of the neck of the femur could not be more beautifully illustrated than by the following case:

Miss H. H, aged 32 years, came to me, July 11, 1924, referred by Dr. G. W. Crile. She had suffered from ankylosis of both hips, apparently the result of suppurative arthritis. In 1917 an arthroplasty had been performed on the left hip, and in 1919, on the right hip, by Dr. Carl Hoy of Columbus Excellent motion was obtained in both hips, and the operator is to be congratulated on the exceptional result *in the left hip* The right hip, however, was a serious disappointment to the patient; so much so that she felt she would much *prefer* the stiff hip that she had had prior to operation, because *there* was constant danger of dislocation whenever the limb came to or beyond the midline. Moreover, the function of abduction had been lost

This case presented two features: (1) a constantly recurring dislocation of the hip whenever the limb swung to the midline or beyond, and (2) loss of the function of abduction These are the very conditions which my bone-muscle lever was designed to overcome or prevent. The operation, July 14

1924, was therefore approached with a great deal of interest by myself and my associates. The roentgenograms in this case are interesting (Figs. 4 and 5). The newly formed joint resulting from the previous arthroplasty was found to be an excellent false joint, with a well formed acetabulum, containing clear fluid, quite closely resembling synovia. The femoral portion of the hip, however, was merely the stump of the neck. The hip was most lax, and could be readily dislocated. The bone lever was erected from the outer and upper end of the femur, precisely as described and illustrated previously. Figure 5 illustrates the bone lever firmly united in its oblique position to the shaft of the femur. In May, 1925, the patient wrote that the hip had not dislocated, and that she considered the result excellent.

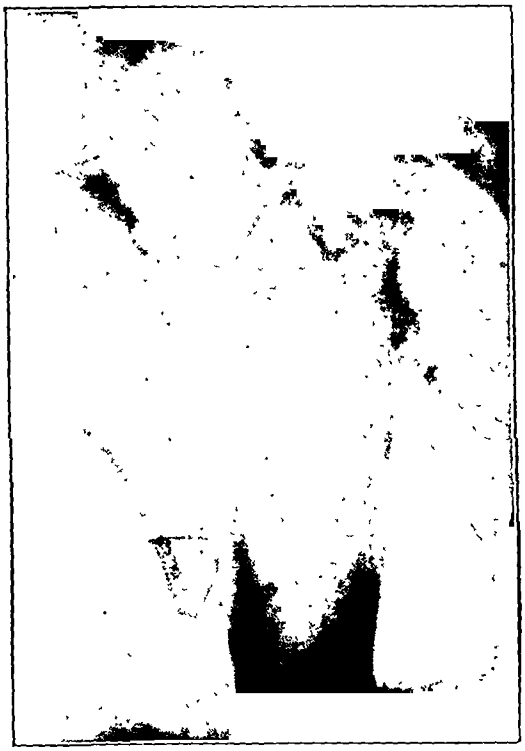

Fig. 2.—Result after bone-muscle lever has united in place; illustrating the wide distance between the great trochanter and the side of the pelvis in proximity to the rim of the acetabulum, thus allowing for generous abduction.

MECHANICAL ACTION OF BONE-MUSCLE LEVER

The mechanics of this operation, which have already been discussed, may be further elucidated by a description of the mechanical action of the bone-muscle lever in this case. The insertions of the short trochanteric or abductor muscles were carefully left intact on the trochanter or proximal end of the lever. As the approach to the hip did not interfere with the innervation or force of these muscles, the ability to abduct, lost with the leverage action of the neck of the femur, was restored at the same time that dislocation, when the leg came to the midline or beyond, was prevented by the outward excursion of the proximal end of the lever and the resultant tension not only on the trochanteric muscles, but on the soft parts surrounding them. This caused the newly formed femoral head to be jammed firmly into the acetabulum, thus preventing dislocation (as indicated by direction of the arrow in Figure 3 *C*).

Attention should be called to a misleading statement by Whitman[2] who, in discussing my operation says: "The trochanter, being ill adjusted to the acetabulum, is liable to displacement if motion is permitted, and in both instances there is complete loss of leverage for the abductors, therefore lessened muscular control and a consequent tendency toward flexion and adduction of the limb." This is quite untrue, and indicates a misconception of my technic, as does the illustration in which he attempts to illustrate my reconstruction operation. The latter entirely misrepresents the mechanics of the operation, in that the lever is about one fifth the length I have always made it, and is not oblique to the shaft of the femur, as it should be. The operation, properly performed, does not interfere with abduction, and a review of forty-eight cases shows that muscle control was definitely conserved in all. An inspection of my diagram in this paper (Fig. 3) will show that this operation produces the most efficient leverage action of any operation so far reported.

CONGENITAL DISLOCATION

Because of the extensive scope of this paper, I shall not refer to the various reconstruction operations for congenital and acquired dislocations of the hip, but shall limit my discussion to cases in which the acetabulum is so shallow, or the head so faulty in shape, that the latter will not remain in place after reduction; and those in which the limb has been so shortened and the hip so far elevated that it is impossible to deliver the head into the acetabulum. In such instances, it is necessary to construct an acetabulum higher up on the ilium. Here, again, the surgeon's mechanical ingenuity should be drawn on to meet the exact mechanical conditions found. The methods that I have resorted to in such cases have already been described.[3] One method with which I am particularly pleased is one in which the bone graft material is wholly obtained from the outer table of the side of the ilium itself. The work, in brief, consists of either deepening the acetabulum by means of bone graft wedges, or extending the roof of the acetabulum by means of turning down a graft from the outer table of the ilium over the head of the femur, situated in the shallow acetabulum (Figs. 6, 7 and 8). Or an acetabulum may be formed higher up on the ilium.

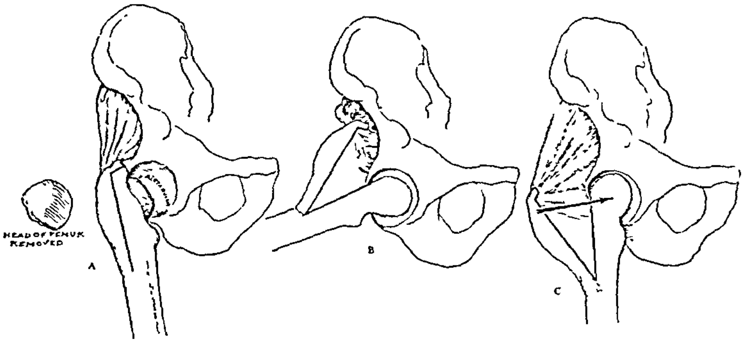

Fig. 3.—Albee's method of treating ununited fractures of the neck of the femur by removing head of femur and producing greenstick fracture, the trochanter being swung outward on the periosteal hinge. The remains of the neck of the femur and upper end of the great trochanter are to articulate with the acetabulum, the inverted portion of the capsular ligament contributing to the formation of the new articulation.

I wish to emphasize the wisdom of adopting this last procedure in all cases in which it is necessary to employ such great force in securing reduction that undue trauma to the acetabulum or the head of the femur results. Formerly, and unfortunately in certain instances even today, surgeons regarded reduction as the prime indication of satisfactory treatment, regardless of the trauma entailed. Further study of such cases, however, reveals the fact that so much limitation of motion resulted from the trauma at the time of reduction that the late results must be classed as most unsatisfactory. Had the surgeon been less heroic and more ingenious in his methods, constructing an acetabulum higher up on the side of the ilium, the late results would have been a slight amount of shortening, with a satisfactory functional hip and a large range of motion.

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[2] Whitman, R.: The Reconstruction Operation for Ununited Fracture of the Neck of the Femur, Surg., Gynec. & Obst. 32: 482 (June) 1921.
[3] Albee, F. H.: Bone and Graft Surgery, 1915 and 1919.

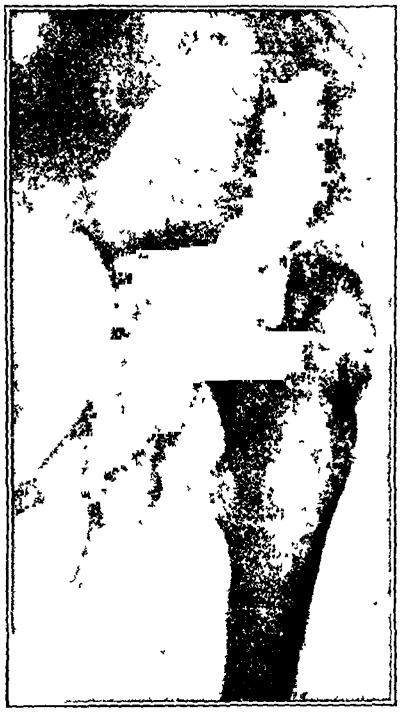

Fig 4—The result of a previous arthroplasty, with the head and part of the neck of the femur removed Because of the close proximity of the tip of the trochanter to the outside rim of the acetabulum and side of the pelvis, the femur is transformed into a lever with its fulcrum point at the tip of the trochanter Consequently, abduction of the femur draws the reconstructed articular portion (on its neck) out of the acetabulum, and dislocation results.

Numerous other types of bone plastic operations have been practiced in these cases, and will be described at a later date.

CASES IN WHICH ARTHRODESIS IS DESIRED

No joint in the body is better adapted to arthrodesis, or offers a better functional result following it, than does the hip. Although I have been performing such operations for more than fifteen years, I am still surprised and gratified beyond expectation by the late results in certain patients who come back to me to express their satisfaction. I have no other group of cases in which operation affords so high a percentage of thoroughly satisfied patients. A patient who is told that the hip is to be stiffened to relieve pain naturally expects increased limitation of motion in that quadrant of his body. He is most agreeably surprised to find that, in his own judgment, the motion has been increased after the hip has been ankylosed. This happens in a large percentage of cases. When the hip becomes entirely ankylosed, and all anxiety regarding pain has ceased, the muscle spasm induced by nature's attempt to guard the hip joint is relieved, and the compensatory motion in the lumbar spine or knee joint is so great that the patient believes motion has been increased, in certain cases even in the hip itself. This is accounted for by the unusual anatomic condition: the psoas magnus controls motion not only at the lumbar spine but also at the hip. Other muscles control motion at both the knee and the hip, namely, the biceps femoris, semimembranosus, semitendinosus, rectus femoris, sartorius and adductor gracilis. Consequently, involuntary muscle spasm, which takes place in muscles controlling motion at the hip, not only causes pain at the hip, but has a marked inhibitory influence over motion in the lumbar spine and in the knee joint.

The first medical body before which I demonstrated the operation for arthrodesis of the hip was the International Congress of Surgery at Budapest in 1909; at that time I reported five cases, all of arthritis deformans. Since that time I have somewhat modified the technic, and have applied the operation to a large variety of hip conditions, such as tuberculosis in the adult, infectious arthritis, comminuted fractures and dangle hip from paralysis.

MODIFIED TECHNIC

The approach is through the Smith-Petersen incision. The technic originally designed consisted merely of removing all cartilage from the superior surface of both the head and the acetabulum, so that cancellous bone of the head comes in contact with cancellous bone of the acetabulum. Because of a certain percentage of delayed unions, and a few failures to unite, I have supplemented this procedure by sliding a graft (approximately 1½ inches wide, and extending from just above the rim of the acetabulum to just below the crest of the ilium) downward toward the outer table of the ilium into the split substance of the trochanter, having first denuded and widened the neck of the femur, so as to secure as much raw surface of bone for contact with the under surface of the graft as possible. In certain instances it has been possible to swing the graft on a pedicle of muscle instead of sliding it. In obtaining the graft, care should be taken to leave the rim of the acetabulum intact, in order to furnish the maximum surface of acetabulum to fuse with the head of the femur. Care should also be taken that about one half of the graft is contacted with the pelvis, and one half

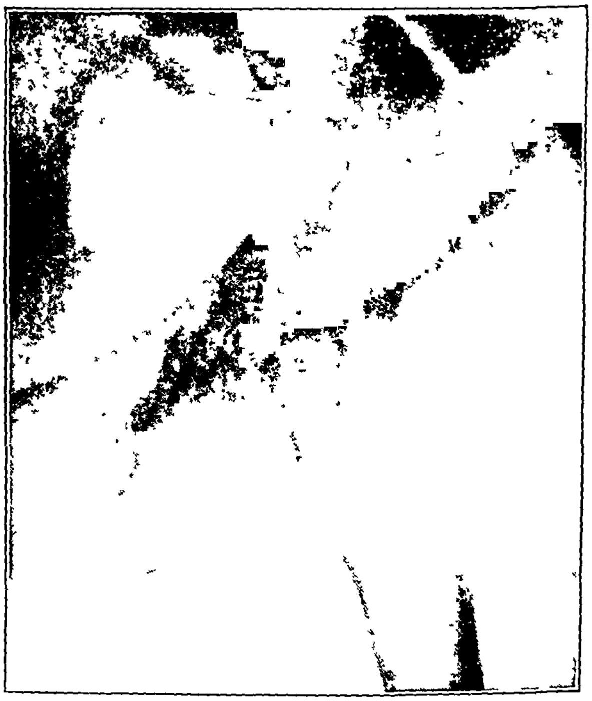

Fig 5—Mechanical effect of the Albee reconstruction operation in displacing outward the fulcrum point of the trochanter, thus taking away the leverage or dislocating action from abduction of the femur. It further illustrates the mechanical advantages of this operation as set forth in the text

with the femur; this produces an osteogenic or vascular conducting bridge, spanning across the hiatus, to be arthrodesed. Caution is necessary in attempts to arthrodese any joint, as nature is most efficient in restoring motion and interfering with arthrodesis following operative procedures—one reason for fortifying the result by adding another element of safety, the bone graft.

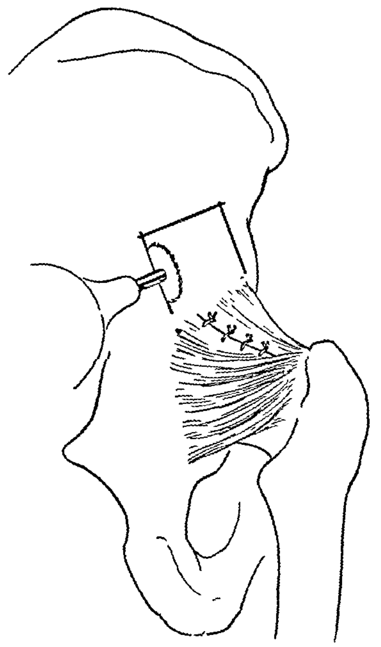

Fig. 6.—Closed incision in the capsule that was made to inspect the depth of the acetabulum, etc. The motor saw cuts for the turning down of the outer table of the ilium over the femoral head and overlying capsule, as illustrated in Figure 7, may be noted.

The technic, when applied to any lesion whatever, varies only in accordance with the mechanical confirmation found.

It has recently been stated[4] that arthrodesis offers "an uncertain outcome because abduction of the limb, the attitude of election, separates the upper surface of the head from the acetabular roof to which it should be apposed in order to secure union, and in a large proportion of cases, although sufficient restriction of motion may be assured after prolonged fixation to relieve pain, there is recurrence of a certain degree of flexion and adduction deformity after the support is removed." I can only recommend that such untoward results can be entirely avoided by the use of the proper technic, and it is for this very reason that I have in late years employed the bone graft as a safeguard, and as an added element in hastening and insuring solid bony ankylosis.

It is desirable to employ the immobilizing influence of union of the femur to the pelvis in cases of acute or subacute joint disease, especially tuberculosis, in which for various reasons it is not desirable to enter the infected area. This is principally because of the danger of causing metastatic infection, immediate or remote, by traumatizing an acute tuberculous area or lesion. Moreover, since the tubercle bacillus inhibits osteogenesis, any tuberculous joint is an unfavorable site in which to attempt to secure ankylosis. In such instances, I have employed a technic, which I first described in my Bone and Graft Surgery (1915 edition).

Two large strong tibial grafts are employed. The approach is by a curved incision over the gluteal muscles lying between the ilium, just posterior to the anterior-superior spine and the tip of the great trochanter. A straight incision through the fascia and the entire muscle is made from a point just inferior and posterior to the anterior-superior spine of the ilium to the anterior surface of the great trochanter; another straight incision is made from a point approximately from 1½ to 2 inches posterior to the upper end of the first incision, to the posterior surface of the great trochanter; the two converge to a common point at the inferior portion of the outer surface of the trochanter. Then, with the motor saw, bone incisions are made in the trochanter, converging below and in a line with the incisions just made in the muscles, thus leaving a triangular area of the trochanter between the converging sawcuts (Fig. 9). The bone on the anterior portion of the trochanter is turned anteriorly with an osteotome, the soft parts being used as a hinge. The same precedure is carried out on the bone posterior to the second motor-saw cut, except that the trap door of bone is turned posteriorly. The shaft of a long osteotome or chisel is then laid in this gutter, and its cutting edge placed on the side of the ilium; then, at the upper end of the anterior incisions in the muscle, the outer table of the ilium is severed by gentle taps of the mallet. The hole is enlarged to receive the end of a tibial graft, which is later to be driven in. The bone at the upper end of the posterior incision in the gluteus muscle is treated similarly. The tibia, preferably on the same side, is laid bare from the tubercle to about 2 inches above the ankle joint. With the Albee bone saw, a graft is obtained from the center of the tibia. This should be sufficiently long so that, when divided in halves, it will furnish two grafts adequate to span the space from the trochanter to the holes already made in the ilium. The ends of the graft are made wedge shaped, so that they can be driven into the holes in the ilium, by placing the graft in the trochanteric gutter and gently rapping it into place with a bone-driving instrument, which simulates a nail set used for a similar purpose by the carpenter. The trap doors of bone are swung back over the distal ends of the graft and held by means of interrupted sutures of medium kangaroo tendon, thus keeping the graft in position. The wound is then closed by the usual method.

Figure 10 shows the condition in a case of tuberculous hip disease, which had been treated for three years by adequate braces before the patient (a woman, aged 43) came to me. I continued the mechanical treatment for an additional period of two years by means of the Phelps brace with crutches, but at the end of this time (1915), the hip was more acutely painful than at any previous period. Because of the discouragement of both the patient and myself, I resorted to the operation just described. The roentgenogram presented in Figure 10 is a most interesting demonstration of the influence of mechanical stress on a graft, in that the graft increases in strength and diameter in proportion to the amount of mechanical stress brought to bear on a particular portion. It may be noted that these grafts are much larger in diameter at the point near the trochanter where more mechanical stress comes on them than at the end where they are united to the ilium, which is the end of the lever distal to the fulcrum point.

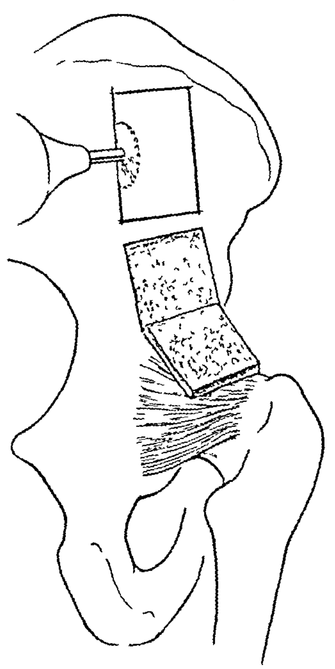

Fig. 7.—Bone from the outer table of the ilium turned down with periosseous structures, the bone itself acting as a hinge. With the motor saw removed, the bone from the upper portion of the ilium serves for a brace, as indicated in the next illustration.

This patient was sent to the Burke Foundation Convalescent Hospital at White Plains, where she made such an uneventful and satisfactory recovery that she was engaged as an employee in the hospital, and has continued there ever since with absolute relief of all symptoms. She is in perfect health at the time of writing.

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[4] Ann. Surg. 80: 781 (Nov.) 1924.

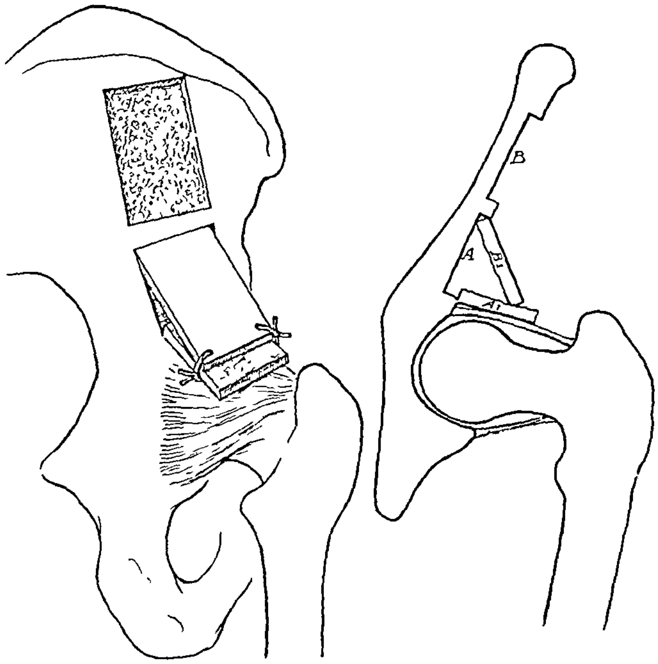
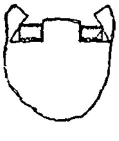


Fig 8.—The completed bone work, with interrupted kangaroo sutures in place. These kangaroo tendon sutures are inserted into the capsule and into the drill holes in the bone graft, in order to hold them firmly in place

Since this patient was operated on, twelve other cases have come to operation. These will be the subject of an independent paper to be published later. Three of the patients were suffering from acute symptoms and had been treated elsewhere, by stretching and manipulation, for a pronounced adduction and flexion deformity. In each instance, the deformity had recurred, with an increase of pain. One of the patients had received manipulative treatment three times, with a recurrence of the deformity each time. In all three cases, the adduction and flexion deformity was easily corrected at my operation by the influence of the orthopedic table, the patient being fully etherized. The bone grafts have afforded arthrodesis, immobilization and the avoidance of braces.

INDICATIONS



This operation for tuberculous hips is especially indicated in cases of long standing in which there has been an extensive destruction and absorption of the head and even the proximal end of the neck of the femur, and occasionally of the acetabulum; that is, in cases in which the bony material that might be utilized to secure fusion by the ordinary type of arthrodesis is absent. By the use of the bone graft, entrance into the tuberculous joint is avoided, and the active osteogenic bone of the grafts is contacted with the healthy active bone of the femur on one side and of the pelvis on the other. The full effect of the arthrodesis is thus afforded by means of bone graft bridges in the soft parts extra-articularly.

40 East Forty-First Street.

ABSTRACT OF DISCUSSION

Dr. W. C. Campbell, Memphis: Dr. Albee has brought to our attention a most interesting and important subject. There are four different types in which reconstruction is necessary in hip joints. They are those in which the weight of the body is thrown on the muscle and the soft structures, from which many suffer considerable hip strain, referred pain and various symptoms. The four conditions that I mention are, first and of most importance, an old fracture of the neck of the femur. This condition is considered absolutely hopeless by the profession in general. In old fractures of the neck of the femur we now have methods such as Dr. Albee and others have demonstrated, in which relief can be given to a large percentage and we can not only relieve the constant pain but also place the patient on his feet. Of course he has a persistent limp, but crutches are discarded. The second type of case that I might mention is the paralytic dislocations, such as dislocation of the hip joint following poliomyelitis, in which there is considerable mechanical disability. A third class is the old congenital dislocations. The fourth class is the result of tuberculosis. In paralytic dislocation of the hip I employ a technic which consists of cutting loose the upper portion of the flat acetabulum, and displacing outward, so as to extend and deepen the socket. Multiple flaps of bone are turned downward from the crest of the ilium to reinforce the extended acetabulum. In congenital dislocations, we do just as Dr. Albee has demonstrated: make the acetabulum above the seat of the normal joint. In some cases, Dr. Albee changes the fulcrum of the trochanter and gives a direct muscle pull in exactly the right direction. That is a great advantage. I do not see why it could not be used in conjunction with the Brackett operation. I am not quite sure that it is necessary to remove the head in all these cases. It takes a little more time, and I think that if this is well reamed out we may obtain pretty fair fibrous union, even bony union. I think that extending the acetabulum, as mentioned above, is an advantage. As to arthrodesis of the hip, I have had no experience with that method. It is very difficult to accomplish fusion in the hip joint by removing all the cartilage even to raw bony surfaces. At least, I have had a great deal of difficulty in producing solid bony fusion in this way, and the method that Dr. Albee has shown I think gives a better chance.

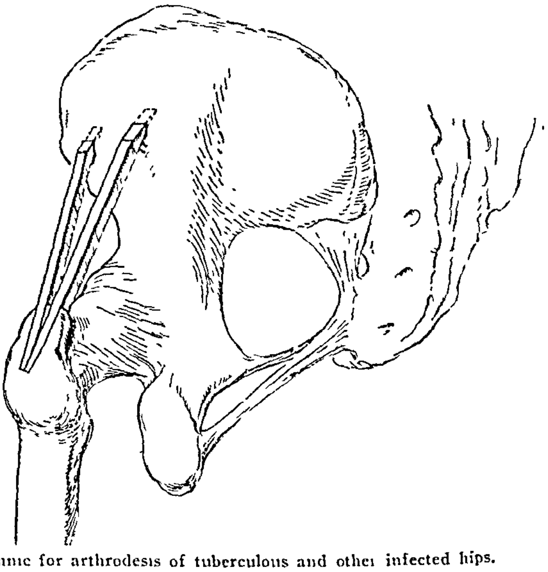


Fig 9.—Technic for arthrodesis of tuberculous and other infected hips.

Dr. M. N. Smith-Petersen, Boston: For some time we have used the Whitman operation in ununited fractures of the neck, and it is a technically easier operation than the operation described by Dr. Albee. Dr. Albee's operation requires thorough familiarity with his equipment, not only on the part of the surgeon but also on the part of the assistants.

In performing the Whitman operation I myself prefer to transplant the trochanteric muscular attachment with the shell of bone rather than the entire trochanter. Earlier union and earlier function are thereby secured. In regard to extra-articular arthrodesis, we have come to the conclusion that we do not get consistently good results. In the intra-articular arthrodesis, dislocating the hip, cleaning out the acetabulum and denuding the head, we use in addition extra-articular osteoperiosteal grafts to hasten bony union. In popping the head of the femur out of the socket, the capsule should first be widely opened. Incomplete exposure invariably means unnecessary trauma. May I say a word about the Lorenz operation? I feel so strongly against that operation that I want to take the opportunity to say that it is mechanically unsound; it does not consider anatomic or physiologic laws. At the present time it is our duty in every possible way to prevent surgeons from undertaking an operation which cannot help but produce ill effects later. Temporarily, it may give a functionally good result: but, as years go by, the results are bound to be disastrous.

Dr. M. S. Henderson, Rochester, Minn.: I should like to ask Dr. Albee about the advisability of removing the head of the femur in these cases. I know that there are certain cases in which, no doubt, the head is so atrophied and devitalized that it should be removed. Dr. Campbell called attention to Dr. Brackett's operation, and, in several cases, I have had excellent results by employing this operation, which consists of freshening the head of the bone, reshaping the upper head of the femur and placing them in apposition and maintaining that position until they unite. In one case in which there seemed to be no life in the head, so far as I could see, and it looked as though it was atrophic, the head went on to good function, securing its nutrition from the lower fragment. The Brackett operation is particularly applicable in younger people when the neck is completely absorbed. So many factors enter into the selection of operation for this type of reconstruction work that, in a brief discussion of this kind, it is difficult to do justice to the subject; but I should like to know Dr. Albee's candid opinion as to the necessity of the removal of the head of the femur and how often he thinks it should be done, comparatively speaking. Dr. Albee stated that in only 10 per cent. of the cases that come to him now was he doing the bone grafting operation. That is very interesting and would indicate that the bone graft in the reconstruction work in the neck of the femur has not lived up to what we had expected. Nevertheless, when there is a fair amount of neck left to the femur, and the patient is reasonably young and in good condition, it seems to me that the bone graft reconstruction operation is the one of choice.

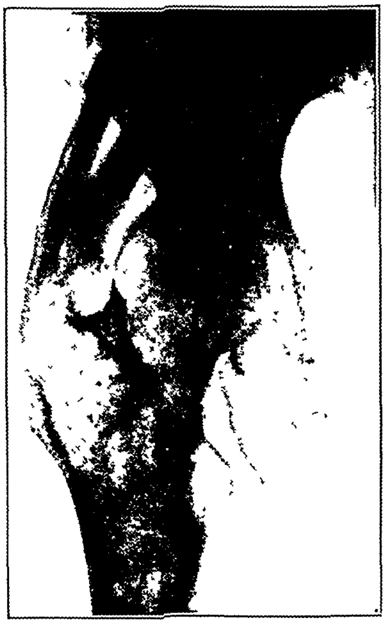


Fig. 10.—Postoperative result eight years after operation. The influence of mechanical stress on the grafts may be noted. The joint has become completely bony ankylosed.

Dr. W. G. Stern, Cleveland: The Whitman modification of Brackett's operation, which Whitman also calls the "reconstruction operation" of the hip joint, does not depend on bony union for its success, and it is fairly easily done. Still, the shock of such an operation in old persons is a danger that should not be passed over lightly, and that leads me to speak in favor of the Lorenz "bifurcation operation" that Dr. Smith-Petersen condemns. There is something to be said in favor of the anatomic arrangement of affairs in the Lorenz operation. In an ununited fracture of the neck of the femur, one leaves the head in place, and the capsule of the hip itself is not disturbed. The operation is merely a subtrochanteric or intratrochanteric osteotomy of the shaft of the femur, and the upper part of the lower fragment is so placed by abduction that it either impinges below the fractured head of the femur, or in congenital luxation of the hip so impinges on the acetabulum that the original capsule of the joint is between the upper end of the distal fragment and the acetabulum itself. Therefore, having the original capsule between the bony fragment and the articular surface, I do not see how this is more unscientific and more unsound than the usual arthroplasty operation at the neck of the femur, in which a fascia graft is taken from somewhere else and placed between the two raw surfaces. The bifurcation operation can be done very easily, and takes only ten or fifteen minutes. There is practically no hemorrhage, and no sutures are used. All one needs do is to abduct the limb in such a way (about 30 degrees) that the upper end of the distal fragment is either in the acetabulum or impinges beneath the head of the bone in ununited fracture. The upper fragment, whatever it may be, so rotates inward that one has a real bony hand or buttress projecting up against the acetabulum, and one has the original, undisturbed capsule of the joint in between the operative field and the acetabulum. The thing for us to do is to test out the operation by choosing our cases wisely, treating them properly and then studying our results. Be that as it may, I believe with Dr. Albee that the day has come when, in ununited fracture of the femur, we had better do a reconstruction operation on the hip joint than the old dowel graft operation. I should like to ask Dr. Albee one question: In contradistinction to Dr. Whitman, who chops off the trochanter and then implants it down farther on a freshened portion of the shaft, Dr. Albee splits the trochanter and part of the shaft of the femur with it, and abducts it. Dr. Albee did not tell us how he keeps this wide angle open. To my mind, something must go well in between this split portion of the trochanter and part of the shaft, and the remains of the shaft of the femur itself.

Dr. F. J. Gaenslen, Milwaukee: This discussion with reference to the Lorenz operation is really quite apropos, because in a measure the operation done by Dr. Albee is a bifurcation operation, although it is not done in the way that Lorenz or von Bayer (who devised this practically simultaneously or perhaps just prior to Lorenz' first publication) does it. In my travels abroad in 1922, I found that the operation had received a great deal of attention and a great deal of enthusiastic support, and while I myself have done the operation in only two cases, I am going to continue it, choosing my cases carefully and withholding further judgment until further time has demonstrated the usefulness of it.

Dr. F. H. Albee, New York: For fear that Dr. Smith-Petersen misunderstood the technic in my reconstruction operation, I would say that in that particular instance the bone saw is not necessary at all. But any man who is doing reconstruction bone surgery should have the bone saw on his table all the time, in case it is needed. The argument against the operation does not appeal to me. In reference to the necessity of removing the head, I take it that it is felt that it may be possible to leave the head in place and do exactly the same operation as I have done. I do not know but that may be so. I have been fearful of that for these two reasons: First, that if fibrous union results, will it not cause pain? I am afraid that weight bearing would produce pain. Then, as to motion, I am very fearful of getting bony union in these very bad cases with just a shell of the head left. If one does leave the head, it is similar to a fracture in a joint. In reference to the bifurcation operation of Lorenz, I absolutely condemn it because it is not surgical. We should have things wide open and see what we are doing, and put our parts together as they ought to be put. I have seen excellent results produced by that operation, but what percentage of results is one going to get by such an inaccurate method? With reference to Dr. Stern's remark about the wide angle, of course, the lever is automatically held to that wide angle by the posture of the limb that is put up in strong abduction, completely out beyond the limits of physiologic abduction. I have used small bone grafts in that V cavity, and at other times, I have not. Of course, we have a greenstick fracture there at the lower end and it is very favorable to union.

THE ETIOLOGY OF INCRUSTED CYSTITIS WITH ALKALINE URINE *

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Incrusted cystitis is a chronic inflammatory condition of the urinary bladder manifested clinically by symptoms of dysuria, urgency and frequency, and the passage of gritty material or sand. In certain cases the urine is strongly alkaline, the degree depending somewhat on the severity and chronicity of the process. Usually the urine contains a large amount of blood and mucus, and sometimes pus. The marked discrepancy between the number of red blood corpuscles and pus cells in the urine in this form of cystitis has often been contrasted with the ratio in ordinary cystitis. Because of the nature of the gritty material and the alkaline condition of the urine, this particular type of cystitis has been referred to as chronic alkaline phosphatic cystitis. On cystoscopic examination the bladder presents crusted material which is hard, is firmly embedded in the mucous membrane, and may be limited, affecting only a small area of the bladder surface, usually in the trigonum, or generalized, covering almost the entire mucous membrane. Often these deposits are found when patients give a history suggestive of previous ulcer of the bladder or mild cystitis, and they sometimes appear in the bladder after fulguration following catheterization, or when tumor growths have been previously observed.

Without considering the clinical characteristics of the disease further than to state that this rebellious form of cystitis is much more prevalent than is generally supposed, and that the treatment has often been unsatisfactory because of the obscure nature of the infection, we shall review some of the results obtained by an intensive study of three cases and a series of experiments on animals.

Various etiologic factors and numerous types of bacteria have been regarded as specific causes of this disease. Since a large percentage of bladder infections descend from the kidney or are carried by the blood from remote primary foci, a systematic clinical study of patients so infected was made. While no particular focus could be found in the patients we felt it desirable to carry on some experimentation along the lines that have been so successfully pursued by Rosenow, Meisser, Hayden and others. It was difficult to obtain accurate information concerning the kidneys on account of the technical difficulties encountered in catheterizing the ureters. The small size of the bladder and the tendency of hemorrhage to follow overdistention, together with the marked irritability and incrustation around the ureteral orifice, made it impossible to insert catheters into the ureters, except with the aid of sacral anesthesia and the intravenous injection of indigocarmin. Eventually the ureters were catheterized in each of the three cases. Altogether, these three patients were under observation for more than a month, and during that time many cultures were made of catheterized urine. We obtained almost always a streptococcus that produced green colonies on glucose blood agar and showed slight hemolysis on plain blood agar. Staphylococci and colon bacilli were also obtained. Along with these organisms we isolated a gram-negative bacillus which produced white colonies on Endo medium, and formed a moist, more or less sticky bluish gray, glistening colony on agar. This organism fermented, with the production of acid and gas, glucose, galactose and xylose, and produced acid in glycerin, and to some extent in litmus milk. The following sugars were not fermented at all: maltose, lactose, sucrose, mannite, dulcite, inulin, inosyte, salicin, arabinose, raffinose, rhamnose and dextrin. Occasionally there was slight acid formation in levulose, but this we attribute to the impurities often found in that particular sugar. These characteristics, together with certain others, suggest that this is similar to that bacillus (*Salmonella foetida*) which Perez isolated from the nasal discharges of children suffering with ozena. However, certain differences present themselves, so that we feel for the present, at least, that it is better to call the particular bacillus described above *Salmonella ammoniae*. The significance of the name lies in the fact that this organism is capable of breaking urea into ammonia and carbon dioxid in a very short time. Sterile urine, when inoculated with this bacillus, will have all its urea converted into ammonia within at least six hours. It will also convert the urea of blood into ammonia.

Following the method of Rosenow, attempts were made to induce localization within the urinary bladder of experimental animals by injecting urinary sediment and the organisms isolated from the urine into the blood stream of rabbits. Some animals were injected with pure cultures of single organisms, while others were injected with combinations of organisms. When cultures were used, the urine was inoculated into brain-broth tubes; then the broth suspension was injected in varying amounts after twenty-four or forty-eight hours' incubation. Also, organisms recovered from the urine or heart's blood of these animals were injected into the blood stream of other animals, and in some instances a second and a third animal passage was made. Some of these animals were allowed to live as long as possible, while others were killed in from twenty-four hours to several weeks after injection. In all, about 200 animals were injected for these experiments. As might be expected when animals were allowed to live longer than three or four days, lesions were rarely found which were acute enough to be attributable to the injection. There were seven animals whose bladders contained distinct inflammatory lesions, but none of these showed incrustations or deposits in the bladder mucosa. Of these seven, only four showed lesions when injected with urine or cultures of urine from the patients. The other three lesions were in animals injected with bacteria after animal passage. Twelve animals showed slight or questionable lesions in the bladder. However, there were just as many lesions in other parts of the body, and many more in the kidneys than in the bladders.

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* From the Sections on Clinical Pathology and on Urology, Mayo Clinic.

* Read before the Section on Urology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

Since the results of these experiments were so inconstant, it did not seem wise to try to tabulate them at all, but they show that under the conditions it was not possible to cause incrusted cystitis in rabbits by injecting intravenously the organisms obtained from urine of patients suffering with incrusted cystitis.

TABLE 1—*Urine Analysis*

			Ureteral													Bladder			
								p_H		Culture		Microscopic							
Case	Age*	Symptoms	Duration, Years	Pus	Blood	Reaction to Litmus	Hours Collected	Right	Left	Right	Left	Right	Left	Chemical Analysis	Per Cent	p_H	Culture	Chemical Analysis	Per Cent.
1	43	Frequency, nocturia, "sand," hematuria	10	Occasional	2	Alkaline	1	...	6 4		—	.	—	(30 c c urine) Total N = 0 46769† Urea N = 0 4186 = NH_3 N = 0 0221 =	 89 3 4 7 94 0	8 6	Streptococcus, Salmonella ammoniae	(80 c c urine) Total N = 0 .016 Urea N = 0 1666 = NH_3 N = 0 0221 =	 88 6 11 07 93 6
2	29	Dysuria, frequency, hematuria	3	1	3	Alkaline	24	6 8	6 8	—	—	—	—	(Combined ureteral specimen 250 c c) Total N = 1 062 Urea N = 1 025 = NH_3 N = 0 0113 =	 96 5 1 0 97 5	8 2	Streptococcus, Staphylococcus, Salmonella ammoniae	(740 c c urine) Total N = 3 454 Urea N = 3 0536 = NH_3 N = 0 0264 =	 88 7 7 37 96 0
3	30	Hematuria, frequency burning	2	0	3	Alkaline	24	5 8	5 8	—	—	—	—	(Combined ureteral specimen 335 c c) Total N = 1 32 Urea N = 1 13 = NH_3 N = 0 10 =	 86 3 7 5 93 8	8 2	Staphylococcus, Salmonella ammoniae	(2,150 c c urine) Total N = 5 92 Urea N = 4 09 = NH_3 N = 1 46 =	 69 0 24 5 93 5

* The three patients were women

† Determinations are in terms of grams for each 100 c c

At this stage of our work, we attempted to find out a little more specifically the nature of the urine in these cases Accordingly, ureteral catheters were inserted, and when these were in place a urethral catheter was passed. The urine was collected for twenty-four hours in two cases, and for one hour in the third, the urine from bladder and kidney being kept separate. The flasks in which the urine was collected were embedded in ice, and the chemical analyses were carried on immediately after the experiment.

TABLE 2—*Analysis of Bladder Deposit or Incrustation*

1	Gm
Dried weight	0 02148
$Mg_3(PO_4)_2$ and $Ca_3(PO_4)_2$	0 00156
$Mg(NH_4)PO_4$	0 00237
$Fe(PO_4)$	0 00108
$CaCO_3$	0 00573
Organic matter	*0 01074*
2	Gm
Dried weight	0 06590
[illegible]	0 01231
[illegible]	0 01016
[illegible]	0 04343
3	Gm
Dried weight	0 06050
[illegible]	0 01710
[illegible]	0 0?830
[illegible]	0 00482
Organic matter	0 01028
4	Gm
Dried weight	0 03910
[illegible]	0 00594
[illegible]	0 004 9
[illegible]	0 005?0
Organic matter	0 02317

Table 1 gives in detail the results of these studies, and shows that whereas the urine as it comes from the kidney is acid and contains the normal ratio of urea nitrogen to ammonia nitrogen, the urine from the bladder, although collected simultaneously, is markedly alkaline, this alkalinity being accounted for by the change of urea into ammonia. Since this is so characteristic of the action of *Salmonella ammoniae*, it seems evident that the production of an alkaline urine within the bladders of these patients was due to *Salmonella ammoniae*. We were therefore inclined to consider this organism of importance in this disease, since the production of an alkaline urine would result in the precipitation of certain insoluble salts.

Table 2 shows an analysis of some of the incrustations removed through the cystoscope. They consist chiefly of calcium carbonate, calcium-ammonium phosphate and magnesium-ammonium phosphate.

TABLE 3—*Chemical Analysis of Bladder Urine Collected for Twenty-Four Hours* *

	Case 1		Case 2	
Amount	850 c c		640 c c	
Reaction	p_H 8 0		p_H 9 4	
	Gm	Per Cent	Gm	Per Cent
Total nitrogen	10 13		5 02	
Urea nitrogen	5 62	55 5	1 73	32 4
Ammonia nitrogen	3 51	34 6	2 48	49 4
Uric acid nitrogen	0 07	0 6	0 13	2 6
Creatinin nitrogen	0 35	3 6	0 27	5 3
		94 3		89 7
Calcium	12 2			
Magnesium	0 96			
Sodium chlorid	5 50		7 54	
Phosphate	2 023		2 00	
Titratable acidity	0 0			

* Twenty four hours' starvation prior to collection, nitrogen intake during collection, 11 gm

Table 3 gives a more complete analysis of twenty-four hour samples of urine of two of these patients and shows the high percentage of ammonia nitrogen, a part of which probably resulted in the action of *Salmonella ammoniae* while the urine was standing awaiting analysis.

In the next experiments we attempted to implant a culture of *Salmonella ammoniae* in the bladder of experimental animals. Five guinea-pigs were catheterized, and 0 5 c.c. of a twenty-four hour broth suspension of this organism was introduced into their bladders. Two of the guinea-pigs were killed and examined three days later, and the remaining three, a week after the injection. The bladders were entirely normal and the organism could not be recovered from the urine. We next attempted to implant *Salmonella ammoniae* in the bladder of animals in which we had induced an artificial chemical cystitis. After some experimentation we determined that the instillation of from 0.5 to 1.0 c.c. of a 0.1 per cent. alcoholic solution of salicylic acid would produce a rather intense cystitis. This varied from small patches of ulcerated areas to general sloughing of the entire mucosa of the bladder. In some instances perforation of the bladder resulted and the animals died from peritonitis. Usually at the end of ten days healing in the bladder had progressed until it was difficult to detect grossly that the bladder had been injured, and by the end of two weeks 98 per cent. of the animals had recovered and new mucosa had practically covered the bladder.

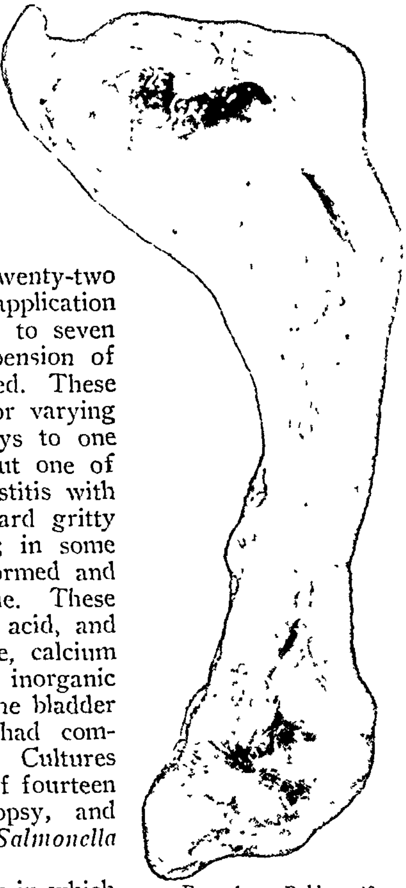

Fig 1. — Rabbit 40: 1 c.c. of a 1:1,000 alcoholic solution of salicylic acid injected into the bladder, followed five days later by the injection of 1 c.c. of a broth suspension of Salmonella ammoniae. Necropsy performed fourteen days later.

The most acute stage of this ulceration and cystitis occurs about two days after the instillation of salicylic acid. Twenty-two guinea-pigs were given this application of salicylic acid, and from two to seven days later 1 c.c. of broth suspension of *Salmonella ammoniae* was injected. These animals were allowed to live for varying periods, ranging from four days to one month. On examination, all but one of the bladders showed intense cystitis with ulceration and deposition of hard gritty material on the affected areas; in some bladders, definite stones had formed and were found floating in the urine. These deposits were soluble in acetic acid, and proved to be calcium phosphate, calcium carbonate and mixtures of other inorganic salts of the alkaline metals. One bladder showed no incrustations and had completely healed after one month. Cultures of the urine from the bladders of fourteen animals were taken at necropsy, and each gave a pure growth of *Salmonella ammoniae*.

A control series of six animals in which we injected *Bacillus coli* instead of *Salmonella ammoniae* gave no incrustations or stone formation, the bladders healing just as if the treatment with salicylic acid had been followed by no other procedure.

Rabbits were also used in similar experiments. After treatment with salicylic acid only, the bladders healed in about the same length of time as in the guinea-pigs. Ten rabbits were injected with *Salmonella ammoniae* after treatment with salicylic acid. Of these, six showed definite incrustations superimposed on the chemically induced ulcerative cystitis (Figs. 1 and 2). The other four did not develop these incrustations. Stones were also developed in the bladders of the rabbits, and one of these was 22 mm. long and 7 mm. wide. It was found obstructing the outlet of the bladder. *Salmonella ammoniae* was isolated from the urine of the six rabbits which had shown incrustations, while it was absent in the other four. It is not certain whether we succeeded in injecting the organisms into these four bladders. Sometimes the catheter passed into the bicornate uterus, and if the bladder was empty it was not possible to determine by aspiration that the catheter was not in the bladder. In all of the animals with incrusted cystitis the urine was very alkaline, the figure of the hydrogen-ion concentration being as high as 9.6 in some instances. A very definite odor of ammonia was detected, but no chemical analyses were made.

These experiments led us to obtain from patients who had been at the clinic previously with the diagnosis of alkaline phosphatic cystitis a specimen of urine for examination. The urine was sent to us in a sterile container; it was taken under as sterile precautions as possible in dealing with patients at a distance. Sixteen patients responded to this request, and of these seven had alkaline urines. In each of these seven *Salmonella ammoniae* was recovered, while in the others, being acid urines, this organism was not obtained. Table 4 is an analysis of these urines, and it shows how consistently they ran.

SUMMARY

From our study and experiments, we conclude that the inorganic salts which are deposited in the mucous membrane, in cases of incrusted cystitis with alkaline urine, are due to a secondary invader, a gram-negative bacillus, which in its growth liberates an enzyme, a urease capable of converting urea into ammonia, thereby causing an alkaline reaction in the urine. The resulting alkalinity precipitates the calcium, magnesium and ammonium salts. We believe that the process may be superimposed on any type of bladder lesion, the initial lesion being produced by some method which we have not investigated, but quite likely often being that formed from a focus of infection, as Rosenow, Meisser and Bumpus have demonstrated. It is interesting to note that Perez' bacillus, which is credited with producing crusts in the nose and a foul odor, also has the ability to convert urea into ammonia.

Since this type of cystitis appears far more commonly in women than in men, and since the organisms of the Salmonella group are common inhabitants of the intestinal tract, we believe it not unlikely that the source of *Salmonella ammoniae* is the gastro-intestinal tract and that the disease is caused by implantation of this organism on some already existing lesion in the bladder. This conclusion is all the more justifiable because so often the history dates, in the case of women, from childbirth or from catheterization. Indeed, we have succeeded in isolating this organism once from a culture of a stool.

Incrusted cystitis with alkaline urine is caused by the implantation of *Salmonella ammoniae* in a bladder which is already the seat of some form of inflammatory or tumorous lesion. If the organism gains a foothold, it rapidly changes urea into ammonia, with resulting precipitation of alkaline inorganic salts. This condition can be reproduced experimentally in laboratory animals.

TABLE 4.—*Urine: Incrusted Cystitis*

pH	Mucus	Blood	Pus	Gritty Deposits	Bacteria
7.0	—	—	—	—	Bacillus coli
5.0	+	—	—	—	Streptococci, Bacillus coli
5.8	—	3	4	—	Streptococci, Bacillus coli
5.0	—	2	4	—	Bacillus coli
5.0	—	Occasional	3	—	Streptococci, Bacillus coli
5.0	—	—	1	—	Bacillus coli
5.0	—	Occasional	1	—	No growth
6.0	—	—	Occasional	—	Streptococci, staphylococci, Bacillus coli
8.6	—	2	2	—	Streptococci, Bacillus coli
9.0+	+	4	4	+	Streptococci, staphylococci, Salmonella ammoniae
9.0+	+	—	2	+	Streptococci, Bacillus coli, Salmonella ammoniae
9.0+	+	—	—	+	Streptococci, Bacillus coli, Salmonella ammoniae
9.0+	+	—	—	+	Bacillus coli, Salmonella ammoniae
9.0+	—	—	—	+	" "
9.0+	—	—	—	+	
9.0+	+	—	—	+	Streptococci, Bacillus coli, Salmonella ammoniae

ABSTRACT OF DISCUSSION

Dr. George Gilbert Smith, Boston: I have met a number of these cases. They are very obstinate and very confusing. The diagnosis is not easy to make. I have seen some cases in which the lesion so closely resembled carcinoma that it was almost impossible to decide whether the case was one of malignancy or of incrusted cystitis. I think Dr. Hager's work will be very valuable in enabling us to *do something in these cases in the future, and* we shall be able to apply the therapeutic test more quickly, so that we can come to a decision as to the diagnosis.

Dr. A. L. Chute, Boston: Dr. Hager has put on a firm basis those conditions that we used to speak of as infections with urea-splitting organisms. I wonder whether those cases following childbirth, in which there is a sloughing of the whole vesical mucosa, which is passed later as a cast, if the patient survives, do not belong to that type of infection. These patients always present an intense alkaline infection of their bladders which, in combination with the trauma that so often accompanies confinement and the retention that follows it, leads to a sloughing of the whole mucosa and its separation from the muscular coats. I saw a patient of this sort, some years ago; it was some weeks after she had passed the slough, and her bladder was nothing but a hollow scar. The condition was the same some years later when I last saw her again. I wonder whether this infection may not be with the same organism Dr. Hager describes.

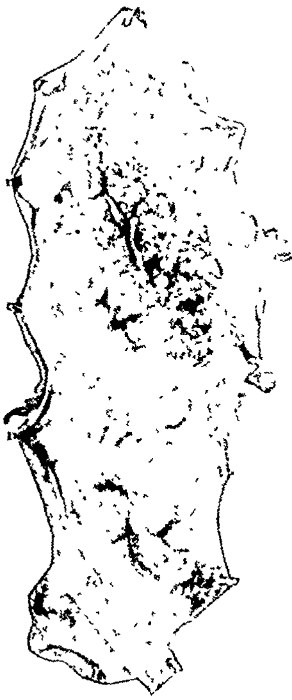

Fig. 2.—Rabbit 8: 1 c.c. of a 1: 1,000 alcoholic solution of *salicylic acid injected into* the bladder, followed five days later by the injection of 1 c.c. of a broth suspension of Salmonella ammoniae. Necropsy performed eighteen days later.

Dr. B. A. Thomas, Philadelphia: I have been accustomed to think of two types of incrusted cystitis: the usual type, in which the incrustations surmount the surface of tumors and ulcers, and another type, in which the whole interior of the bladder is incrusted, like an egg shell. To my mind this is the most classic type of incrusted bladder one can imagine. It occurred in one case under unusual circumstances, particularly so far as the subject of etiology is concerned. The patient was a boy, aged 13, and weighed 69 pounds (31 kg.). He was sent to me for stone in the bladder, with request for immediate operation. The bladder was opened, and a typical egg shell lining was found. The incrustation could not be pulled off without pulling off the mucous membrane. The whole interior of the bladder was incrusted. The urine was clear, alkaline in reaction most of the time, occasionally neutral, and occasionally acid. Culture showed *Bacillus proteus-vulgaris.* I was much interested in the case from the etiologic standpoint, because of the fact that the boy's father had died of tuberculosis a few years before, and I was anxious to see whether there was any relationship. The crusts were made up of a salt of calcium. I had the urine examined repeatedly for tubercle bacilli, but the examinations were negative and we could not clinch that suspected causation at that time. In this connection I think the great value of injections into the bladder of cultures of Bulgarian bacilli in the treatment of these cases should be remembered. At the time of operation it was impossible to remove all the crusts, but within two weeks after the injection of cultures of Bulgarian bacilli, followed by a single irrigation of 1:20,000 mercuric chlorid, the bladder was entirely cleared of the crusts, and remained clear for eight years, when the patient died. He had grown to manhood and had gained 64 pounds (29 kg.) in eight years. A few months before death his physician found tenderness in the lumbar region and discovered a psoas abscess, from which they isolated the tubercle bacillus by smear and guinea-pig inoculations.

Dr. Robert V. Day, Los Angeles: One possible mistake is to say that incrusted cystitis is always due to the same organism. We should say it is due to an enzyme; namely, urease, produced by bacterial growth or bacteriolysis. Doubtless these ureases produced by different organisms are not all exactly alike any more than trypsin, pepsin or papain are all exactly alike. Yet all split up proteins. Likewise ptyalin, amylopsin and taka-diastase all have similar actions, and doubtless the presence of similar enzymes could be found widely spread throughout the vegetable kingdom. Rosenow's work has proved that certain strains of streptococci produce a urease, and we find this frequently clinically. In other words, any organism that produces an enzyme resulting in ammoniacal urine is capable under certain conditions of producing an incrusted cystitis. Aside from relief of stasis and obstruction by drainage and otherwise, we have only one specific, namely, one of the silver salts, which act by fixing the ammonia in a double salt with the silver as fast as it is formed. Other metallic salts and oxids, to a certain extent, have the same tendency. For example, ammoniated mercury is formed very readily, and even manganese oxid to some extent fixes ammonia; but, in actual practice, only silver salts are efficient. I could never procure any results from the method suggested by Caulk of introducing the Bulgarian bacillus in lactose solution. The obvious reason was that the patient's bladder was so irritable that the solution could seldom be retained more than one-half hour. Of course, the formation of lactic acid is slow, and to obtain any appreciable acidity, its presence for many hours would be necessary. Moreover, ammoniacal urine is sometimes formed in the kidney pelvis.

Dr. B. H. Hager, Madison, Wis.: I have not seen any acute fulminating forms of incrusted cystitis. The cases that I have been dealing with have all been chronic, but it is quite likely that the acute forms do occur, for we know how rapidly the incrustations reform after they have been removed by curettement. Dr. Thomas' case was very interesting, but I think we must regard the incrustations in his case as different from those occurring with alkaline incrusted cystitis. Here we have an extremely irritable bladder, which bleeds easily with a high ammonia concentration of the bladder urine and incrustations which are chiefly phosphates. I agree with Dr. Day. We must consider that there are other forms of incrustations occurring in the bladder which are apparently quite different from those of alkaline incrusted cystitis. As we have been able to isolate this specific type of bacillus in three cases under intensive study, and seven at random, I believe that it is a very important organism in the production of this condition.

MANIPULATIVE (CHIROPRACTIC) DISLOCATIONS OF THE ATLAS *

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CHICAGO

Unintelligent manipulations of the structures of the region of the upper cervical spine may result in undesired sequelae, such as have occurred in the three cases here presented. A forward dislocation of the atlas on the axis has been a consequence in each of the cases, one with fracture of the odontoid process; all of the cases were apparently the result of chiropractic treatments. One of them resulted in death, the second in constant dull pain and limitation of motion, with a material loss in efficiency of the patient, while the third appears to be progressing satisfactorily in spite of the dislocation of the atlanto-axial joint, although there is a marked reduction in the movements of the head.

ANATOMIC CONSIDERATIONS

The articulation of the atlas with the axis is a joint of complicated nature, as it is made up of four distinct parts or joints. These are: (1) a pivot articulation between the odontoid process of the axis and the posterior surface of the anterior arch of the atlas, called the atlanto-odontoid joint of Cruveilhier; (2) a sliding joint between the posterior surface of the odontoid process and the interior surface of the transverse ligament, called the syndesmo-odontoid joint; and (3 and 4) two gliding joints between the right and left articular processes. The two bones are connected by ligaments; namely, the anterior and posterior atlanto-axial, the right and left capsular and the ligamentum transversum atlantis. Four synovial membranes are located between the two bones, two in the joints formed by the odontoid process and two inside the capsular ligaments. All these structures provide facilities for rotation of the atlas on the axis, and, with it, the head. Lying posterior to the odontoid process and the transverse ligament, and anterior to the posterior arch of the atlas and the laminae of the axis, is the spinal cord with its meningeal coverings. On the integrity of the ligaments just described depends the maintenance of the proper position of these two bones in the formation of the neural canal, and it will be readily seen that any loss of these ligamentous supports, as, for example, a rupture, will result in a dislocation and consequent compression of the spinal cord. It is also evident that the bony processes concerned with this particular joint do not provide much material support against violence and, as the ligaments themselves are of exceedingly small bulk and length, they cannot stretch or lengthen sufficiently to overcome much tension. Therefore, they will of necessity yield by rupture only, thus permitting the atlas to slide forward on the axis, with a resulting cord compression.

The articulation of the atlas with the base of the skull (the articulatio atlanto-occipitalis) is likewise a relatively weak joint as to bony relations, but its ligamentous support is very much greater than is the case in the atlanto-axial joint. The flattened articular surfaces themselves offer very little resistance to forward or backward forces, but the occipito-axial and the three odontoid (or check) ligaments, together with the support offered by the ligamentum nuchae, provide an ample resistance to disarticulating stresses. The anatomist Gray tells us that "dislocation of the occiput from the atlas has only been recorded in one or two cases; but dislocation of the atlas from the axis, with rupture of the transverse ligament, is much more common; it is the mode in which death is produced in many cases of execution by hanging. Occipito-atloid dislocation is certainly fatal. Recoveries are on record after atlo-axoid dislocation. Immediate death occurs if the transverse ligament is torn or the odontoid process is broken." (An exception to the last statement can be made based on the first case of this series, in which death occurred many months after the injury.) The mechanical details of the joints under consideration are such that a backward displacement of the atlas on the axis is hardly possible. It might occur as a result of an extreme violence producing hyperextension of the head, such as a severe lifting force under the chin, causing an overextension of the head and rupture of the anterior ligaments whereby the anterior arch of the atlas will slip over the top of the odontoid process, if the latter is not broken. A transverse fracture of the odontoid process at its base will permit either a forward or backward dislocation of the atlas even if the transverse ligament of the atlas remains intact.

In all the instances detailed, the important point is the resulting compression of the spinal cord and its coverings and the efferent and afferent nerve structures of the region, as well as the associated blood vessels. In a forward dislocation of the atlas on the axis, there may also occur an interference with the free passage of blood through the verterbral arteries as they pass through the foramena in the transverse processes of the atlas. Interference with the venous flow will also occur in this injury, and the amount of obstruction due to pressure of the bony parts will depend largely on the degree of dislocation, which may be so slight as to result in no disability, as is evident in one of the cases included in this presentation (Case 3).

ROENTGEN-RAY ANALYSIS

The demonstration of this lesion is best accomplished by projections of the craniocervical region, with the patient in the lateral recumbent posture. The binocular shadow visualization of the bones and joints of the region is preferable to the two dimension shadows of the single film. The patient's head should be so placed that its sagittal plane is parallel to the plane of the roentgen-ray film, thus bringing it in direct alinement with the long axis of the spine, the weight of the body resting on the lateral aspect of the nether shoulder. This can be accomplished by use of a hard pillow or block of suitable thickness on which the film casette is laid. An anteroposterior projection is also of value in the determination of this lesion, particularly for demonstration of lateral displacement of the involved bones. This view is not easy to produce, owing to the fact that on direct anteroposterior roentgen-ray projection, the atlas and part of the axis are covered by the shadows of the occipital bone or those of the body of the inferior maxilla, or both. The patient is placed in a supine posture; the mouth is opened to the maximum extent and is kept so by means of a cork or other roentgen-ray transparent material placed between the teeth. The central axis of the roentgen-ray beam is directed to pass through the center of the mouth, to emerge just below the lowest point of the occiput. The

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

resulting shadows will show the atlas, the odontoid process and the body of the axis free from superimposing shadows and will permit a reading of certainty, as to the minute relationship of the osseous structures in the region under study.

The lateral view in the normal presents the shadow characteristic shown in Figure 1 *A*, in which particular note should be made of the position of the shadow of the anterior arch of the atlas in relation to the shadow of the odontoid process, these being in close apposition with each other. The foramen magnum of the skull fits exactly over the space behind the shadow of the odontoid process and in front of the shadow of the posterior arch of the atlas. All the bodies of the cervical vertebrae are found to be in line with one another, when normal, being so arranged that a convexity forward makes an even curve, which is a continuous one. A line drawn on the roentgen-ray film starting from the anterior edge of the atlas will connect all the anterior margins of the cervical vertebrae in an uninterrupted line, as advocated by A. W. George, while a similar line, if drawn on the posterior surface of the odontoid process downward, will also present an uninterrupted curved line connecting all the vertebral bodies. This line indicates the anterior margin of the spinal cord. This is illustrated in diagram form in Figure 1 *B*. In the normal, the shadow of the angle of the jaw always lies close to the anterior edge of the cervical bodies, when the head is held in the normal position. The roentgen-ray shadows of the normal, resulting from the technic here described for an anteroposterior projection through the open mouth, will show an even spacing of the two lateral masses of the atlas with the odontoid process between. In dislocations of the upper cervical vertebrae, these relations are disturbed according to the degree of lateral luxation present. Usually the shadow of the angle of the jaw will be found much farther away from the cervical vertebrae than in the normal, a wide space being apparent, which is often the first clue to the forward dislocation. The degree of compression of the structures in the neural canal can be estimated on this view by inking in the limits of the spinal cord on the roentgen-ray film, as previously suggested.

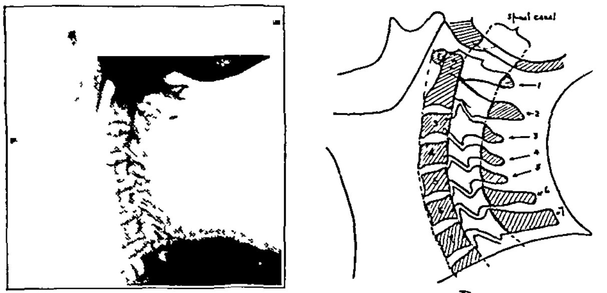

Fig 1.—*A*, lateral projection of normal occipito atlanto-axial joints and cervical spine; the relation of the atlas to the odontoid process of the axis and the formation of the neural canal may be noted. *B*, diagram of roentgen-ray shadow outlines.

REPORT OF CASES

Case 1.—*History*.—F. M., a man, aged 18, a day laborer, brought to the Cook County Hospital, Dec. 28, 1917, complained of pain in the heart, pain in the neck, inability to move his head, and weakness and numbness of the hands. In the summer of 1917, he had a good deal of pain in his back and in the chest, for which he consulted a chiropractor for relief. He was given several chiropractic treatments. The treatment, as described by the patient, consisted of punching and rubbing the back up to the base of the skull while the patient was lying prone on a table, followed by a manipulation of the head, the patient being in supine posture with the head drawn over one end of the table. In manipulating the head, the chiropractor held it with both hands and forced it violently in all directions over the edge of the table. During the course of one of these treatments he felt his neck "snap," and experienced severe pain. He called the attention of the chiropractor to this and was informed that that was part of the treatment and that the snap proved that there was "a faulty position of the seventh [sic] vertebra, which," said the chiropractor, "I now have put back in proper place and the pressure on the nerves, which was making you sick, is now taken off and you'll get well" (patient's statement). However, the patient suffered so much pain that after several more visits he refused to go on with the treatments. He found that, although he had full motion of the head previous to these treatments, he now could not move it without pain, and there was limited motion. The pain got so bad that he could not work and had to spend much of his time in bed. Being without funds, he went the rounds of dispensaries and clinics of Chicago seeking help and finally was taken to the County Hospital.

The patient reported that he had measles and scarlet fever, when a child, and had had attacks of "rheumatism." Four years before, his tonsils and adenoids were removed, and three years before he was told that he had a "heart lesion."

Inquiry was made in an attempt to elicit any previous injuries to the head or neck that would be in accord with the roentgen-ray findings, but no such history was obtained, the patient insisting that his head and neck were perfectly normal prior to the spine treatments.

Physical Examination.—The patient was fairly well nourished; he lay quietly in bed without moving his head. This was held rigidly in extension, and there was a prominence in the neck below the occiput which was very tender to pressure, resulting in a feeling "like an electric shock." He was found to have definite signs of a cardiac lesion, the details of which are not pertinent in this presentation and, therefore, are omitted.

Roentgen-Ray Analysis.—A roentgen-ray examination of the cervical spine and adjacent regions revealed a forward dislocation of the atlas on the axis, with a fracture of the odontoid process, the fragment being carried forward with the atlas (Fig. 2 *A*). In all probability the transverse ligament of the atlas remained intact. The degree of dislocation was extreme, and it was difficult to understand why a greater degree of interference with the spinal cord has not resulted. A roentgen-ray study of the thorax revealed an abnormal median shadow, the configuration of which was similar to that usually found in pericarditis with effusion, in that its outline was distinctly bilateral and of "water bottle" or "gourd" shape, with a relatively normal sized aorta. (This configuration is also found in some cases of right auricular dilatations, as in mitral valve lesions.) Both cardiophrenic angles were acute and, therefore, clear. Both pulmonary fields presented normal roentgen-

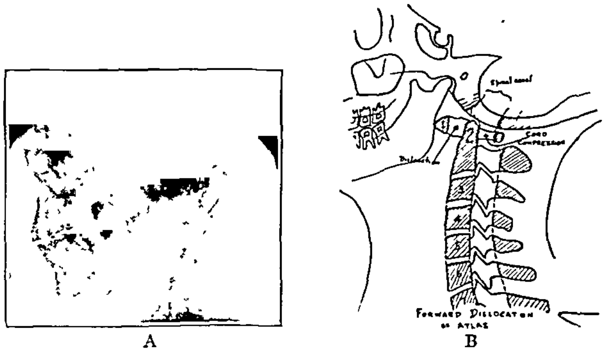

Fig 2 (Case 1).—*A*, roentgen-ray shadow of original examination, showing the forward dislocation of the atlas on the axis; *B*, tracing diagram.

ray transparencies with clear pleural margins; the costophrenic angles were normal.

It is obvious that this patient, prior to having had his spine "adjusted," was suffering from a heart lesion, which was found by an internist to be "mitral stenosis and regurgitation." He complained of no trouble in his neck. The chiropractor, therefore, presumably assumed that the sharp stabbing pain in this man's chest, which he complained of and sought relief from, was caused by a "misplaced seventh cervical vertebra impinging on a nerve" and proceeded to relieve the pressure my manipulating the spine. In the course of his "putting the displaced vertebra back in place" he, by violent force, actually dislocated the atlas forward on the axis and fractured the odontoid process, as shown by the roentgen-ray shadows (Fig. 2 *B*) and the subsequent course of the case.

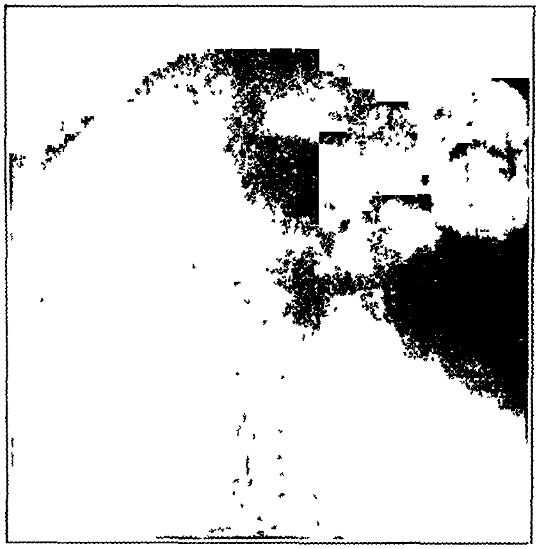

Fig 3 (Case 2) —Forward dislocation of the atlas on the axis

Subsequent Course.—This patient was treated in the orthopedic section by Dr. Charles A. Parker, who put on the patient a plaster collar and suspended his head with a jury-mast, thus relieving the pressure on the spinal cord. He improved very slowly and was made an ambulatory case. Unfortunately, his friends and neighbors interfered because they did not like the appearance of the appliance and they cut off the collar. It was not long after this that he returned to the hospital (October, 1918) in a worse condition than ever, having become bedfast because of a slowly increasing paralysis of the limbs. Day by day the paralysis progressed, and he died in March, 1919, nearly two years after the injury The necropsy report confirmed the roentgen-ray findings and included such items as the following: obliterative chronic fibrous pericarditis, chronic fibrous myocarditis, old traumatic fracture of the second cervical vertebra and an old forward dislocation of the atlas, with pressure on meninges of the upper end of the spinal cord, edema and spinal pachymeningitis and local necrosis of the cord.

Case 2.—*History.*—M. G., a man, aged 29, referred to us by Dr. M. S. Coffler, May 17, 1922, had complained of a "pressing" pain under the sternum, heart pounding and swelling of the ankles. He had been under the care of a chiropractor, who gave him several treatments for a "misplaced sixth (?) cervical vertebra." During the last treatment he felt a sudden sharp pain in his neck and told the chiropractor that it hurt too much to continue. He found that his neck was not only painful but was stiff, and so did not return for more "replacements." Seeking relief, he applied to Dr. Coffler, who found some limitation of motion of the head and a prominence below the occiput, which was painful to pressure; there were signs of a heart lesion. He was referred to me for roentgen-ray study of the neck. The man reported that at no time did he have an injury to the head or neck that would account for the subsequent roentgen-ray findings.

Roentgen-Ray Analysis.—The shadows on lateral projection revealed a forward dislocation of the atlas, indicating a probable 30 per cent. reduction in the neural space between the odontoid process and the posterior arch of the atlas. All other bones and joints of the region were normal. A compression of the cord and its coverings was indicated by the roentgen-ray evidence, although there were no other definite signs of cord pressure.

On being informed of the roentgen-ray findings, the patient arose from his chair and astonished the physician by stating: "Then the chiropractor was right when he told me that I have a displaced vertebra in my neck. He's the only one who diagnosed it correctly, and he is giving me a square deal, so I'm going back to him," and he walked out. Several attempts to reach this man have not been successful, so the subsequent developments cannot be reported at this time. From the roentgen-ray evidence, together with the symptoms in the case, it is obvious that this man received a dislocation of the atlas at the hands of the chiropractor.

Speculation as to the future course of this man's condition suggests that sooner or later there will develop signs of a paralysis of greater or less degree, as there is very little probability of a successful reduction of the dislocated atlas. Whether the tissues of the cord can tolerate indefinitely the pressure caused by such a lesion is questionable.

Case 3.—*History.*—F. G, a boy, aged 6, was referred to me by Dr. G. H. Miller, May 31, 1923, to determine the cause of stiffness in the neck and limitation of motion. There was a history of having fallen off his velocipede and hurting the dorso lumbar spine. A few days later the boy still complained of pain in his chest and back, but not of his neck. He was taken to an uncle, who was a chiropractor, and a "spinal adjustment" in the cervical region was made, after which the stiffness in the neck developed. The boy was then seen to hold his head at an angle to the spine. As the condition did not improve, the mother took him to Dr. Miller, who referred him for roentgen-ray investigation of the cervical spine and base of the skull.

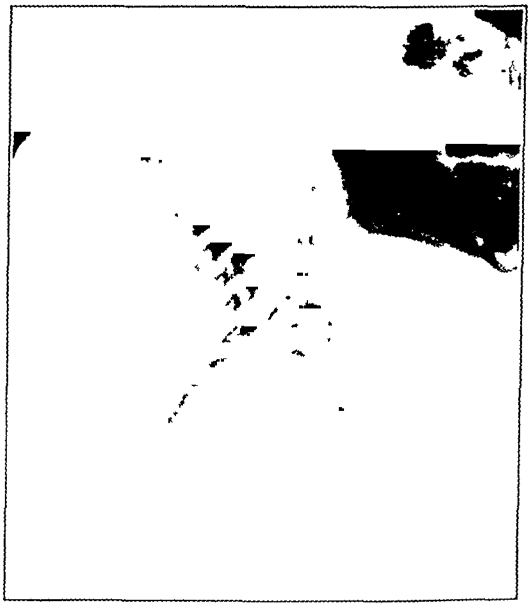

Fig 4 (Case 3).—Forward dislocation of the atlas on the axis

Roentgen-Ray Analysis.—A forward dislocation of the atlas on the axis is evidenced by the shadows of the lateral view (Fig. 4). The spinal cord space is reduced almost one half the normal size, which is conclusive evidence of some impingement of the cord. The remaining vertebrae are normal from the roentgen-ray point of view.

As the boy showed no signs of cord pressure, nothing was done in the way of reduction of the dislocation. His stiffness moderated, and the limitation of head rotation decreased. I made a reexamination of this boy, March 11, 1925, and his dislocation was still as was found on the first observation. He is of a bright and cheerful disposition and does not mind in the least his dislocation. Thus it seems that nature may overcome unnatural conditions such as this one, probably by some manner of accommodation to the new situation, with no apparent interference with the general well being of the individual.

COMMENT

Evidence is presented of dislocations apparently produced by the chiropractors through their so-called spinal adjustments or replacements to relieve supposed pressure on a nerve. On accidentally producing the dislocation described in one of the cases, the claim was made that the "snap" felt by the patient indicated the slipping back of the dislocated vertebra! To treat a heart lesion resulting from acute exanthems, inflammatory joint disease, etc., by replacing the nonexisting dislocated vertebra, claimed to cause the abnormal condition, is preposterous. So long as the laws governing the health of the individual permit such methods as the chiropractic system to be practiced and thus fail to protect an unsuspecting public, just so long will occurrences such as are detailed in this presentation take place. Another case in point that received considerable newspaper notice in the Chicago papers in February, 1923, may be cited. A girl, aged 11, with a tuberculous caries of an upper cervical vertebra was taken to a chiropractic school by her parents; there the students gave her "spinal adjustments" that resulted in a cord injury due to collapse of the diseased bone. Her death followed immediately after this unintelligent, nonscientific and essentially criminal manipulation.

As this is being written, an additional case comes to my notice. It concerns a child, aged 5, who had bronchial pneumonia. The chiropractor to whom she was taken placed the child face downward on two tables separated about eight inches and began manipulating the child's spine; when he came to the portion unsupported by the two tables (he is said to have used great force), the child cried out with pain and died. At the coroner's inquest, it was found that death resulted from the chiropractor's treatment.

ABSTRACT OF DISCUSSION

DR. I. S. TROSTLER, Chicago: I want to report two similar cases to the first three that Dr. Blaine mentioned; one in a highly intelligent woman of 40, the wife of the president of an insurance company, who ought to know better than to send his wife to a chiropractor, but apparently did not. She had a fracture dislocation of the first and second cervical vertebrae with marked deformity but very little paralysis. She is getting along comfortably now after having worn a jury mast for three or four years. I had another case in a man, about 55, an insurance agent and a very intelligent man, who had a student chiropractor attempt to relieve his headache while sitting in a barber chair. He was put in a jury mast, and is quite comfortable. This case was directly the means of defeating the chiropractic bill in Illinois four years ago.

DR. B. F. BUZBY, Philadelphia: I saw a patient last fall with the following history: The child had had her tonsils removed in September. Three days afterward she went home holding her head to one side and complaining of a good deal of pain in her neck. She went back to the laryngologist, who gave her a liniment to rub on her neck. That did not seem to satisfy her parents, so they went to a chiropractor, who gave her treatments for about two months. I saw her four months following the removal of her tonsils. Roentgenograms showed a forward dislocation of the atlas with no damage to the odontoid process. She had no symptoms of paralysis. She held her head in a position of right torticollis and was exquisitely tender at the base of the occiput on the right. I attempted under deep ether narcosis to relieve this luxation, but without any benefit. Two days later, I put on a plaster-of-Paris collar with the torticollis overcorrected and renewed it after three months. I substituted for the second collar a Thomas leather collar reinforced with steel after a second period of two months. The child now holds her head erect without any pain or tenderness, and has practically full motion. *However, the dislocation is still present,* and she wears the Thomas support most of the time.

DR. EDWARD S. BLAINE, Chicago: Since writing this paper I have learned of at least four other cases of similar nature. These give the same story—chiropractic treatment or adjustment of supposed dislocated vertebrae, sudden pain during rolling of the neck over the edge of a table, and roentgen-ray proof that what has actually occurred is a dislocation produced by improper manipulation.

HYPODERMIC DIGITALIS PREPARATIONS *

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NEW YORK

The intravenous administration of digitalis preparations has been recommended because of certain advantages claimed for this method of giving the drug. It has been considered that:

1. The digitalis effects would be produced more quickly because the time needed for absorption from the gastro-intestinal tract would be eliminated.
2. The digitalis effects would be more certain, because of avoiding the variable absorption from the gastro-intestinal tract.
3. Because of these things, a smaller dose would be needed to obtain effects.

In the course of using these products in the treatment of patients with cardiac decompensation, it became plain to me that the manufacturers' claims as to potency, and particularly their recommendations as to dosage, were far from correct. It has never been properly demonstrated that any of these supposed advantages of the intravenous use of digitalis are actual facts, and so it seemed advisable to investigate the activity of these preparations. It seemed especially important because they are commonly and widely used in the most severe cases and in emergencies, when the difference between a sufficient and an insufficient dose might be vital to the patient.

To test the preparations by animal experiment might give an indication of the relative strength of their activity, but we do not know exactly how to transfer the effect on the animal to a human intravenous dosage. Moreover, the promptness of action on the human heart after injection can be ascertained only by experiments on the human being, so it seemed best to do the whole work with the human heart, using the change in the T wave of the electrocardiogram as an indicator of digitalis activity and also the slowing of the rate of a previously untreated auricular fibrillation. These two are the earliest digitalis effects to appear after the administration of a sufficient dose of the drug, and the use of the T wave change as a method of testing various tinctures of digitalis has been recently reported on.[1]

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* From the medical services of the New York Hospital.

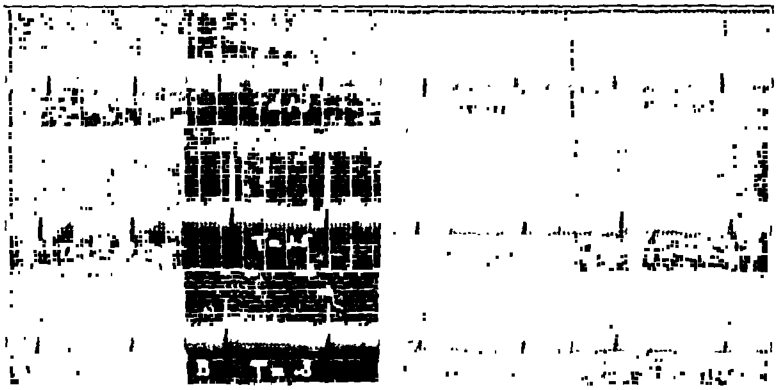
* Read before the Section on Practice of Medicine at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Pardee, H. E. B.: The Standardization of Digitalis by Its Action on the Human Heart, J. A. M. A. **81**: 186 (July 21) 1923.

Under the influence of the drug, the amplitude of the T wave diminishes in one or more leads of the electrocardiogram, as seen in the accompanying illustration. As more digitalis is taken or as the effect of a large dose increases hour by hour, the T wave may come to be turned downward in one or more leads. I have used as a measure of the potency of a digitalis preparation the smallest dose that will diminish the amplitude of the T wave, calling this the T wave unit. I have expressed this dose in fractions of a minim per pound of the patient's weight, because Eggleston's[2] demonstration of the relation of body weight to digitalis dosage has been well proved by experience. It was found that the clinical activity of the different tinctures tested was inversely proportional to the size of the dose that would affect the T wave. Less of the more potent tinctures would be needed than of the weaker ones.[1]

At present I wish to report on the testing of digifolin Ciba, the digitan ampules of Merck, digalen (Cloetta) and the Burroughs Wellcome tablets of amorphous digitalin.

Table 1 shows the results with these preparations, the results *with the samples of the tincture previously tested being included for comparison.* The minimal effective dose—the T wave unit—for different tinctures, by mouth, varied from 0.20 minim per pound for the strongest to 0.30 minim per pound for the weakest, with an average of 0.25 minim. Intravenously the T wave unit for digifolin was 0.30 minim per pound; for digitan solution it was 0.25 minim per pound; for digalen it was 0.3 minim per pound, and for the Burroughs Wellcome amorphous digitalin it was 1/100 grain per 70 pounds.



Record of typical experiment: *A*, control record of a patient weighing 115 pounds, with duodenal ulcer; Leads 1, 2 and 3 from above downward. *B*, record eight hours after 105 minims (7 c.c.) of digitan solution intravenously. *C*, record three days later after an additional 150 minims of tincture of digitalis by mouth. *D*, record taken six days after *A*, the patient having had 300 minims of tincture of digitalis by mouth. The figures given for the height of T are the averages of several estimations for each lead. One may note the slight diminution in the height of T in record *B*, the inversion of T in Lead 3 of record *C*, with sinking of the S-T interval and in record *D*, the frank inversion of T in Leads 2 and 3.

Table 1.—*Results of Tests**

Different samples of tincture of digitalis by mouth.	0.20 to 0.30 minim.
Digifolin intravenously	0.30 minim
Digitan solution intravenously	0.25 minim
Digalen intravenously	0.30 minim
Tablets of digitalin, B. W. & Co., intravenously	1/100 grain per 70 lbs.

* Amount to produce slightest effect on T wave of electrocardiogram. In this table and in Table 2, potency is expressed in minims per pound of patient's weight.

The minimal effective dose of each of these preparations was found to be much larger than suggested by the manufacturer for the therapeutic dose, so much larger that if the printed suggestions as to dosage were followed the patient would certainly fail to receive an effective dose, and so to benefit from the medication.

Table 2.—*Results Obtained by Clarke*

Different samples tincture of digitalis by mouth (Eggleston)	1.7 to 3.8 minims average 2.2 minims
Digifolin by mouth (Clarke)	1.4 to 4.4 minims average 3.56 minims
Digifolin intramuscularly (Clarke)	1.8 to 2.8 minims average 3.0 minims
Digifolin intravenously (Clarke)	2.0 to 2.7 minims average 2.36 minims

In the case of tincture of digitalis by mouth it has been found that the full therapeutic dose was from eight to ten times the minimal effective dose as determined by the T wave change. I do not believe it is ever proper to give the full calculated therapeutic dose of a digitalis preparation at one time, because of the likelihood of producing a considerable degree of poisoning in some susceptible patients. One half of this amount by mouth, four or five times the minimal effective dose, is safe, however, and will produce definite digitalis effects.

From this and from the facts of Table 1, it appears that the initial dose of these intravenous preparations for a patient who has had no digitalis previously should be four times the minimal effective dose as here determined. This works out to about 1 minim per pound of the liquid preparations, slightly more for the digifolin and digalen than for digitan, and 1/100 grain of the digitalin per 70 pounds, which would be eight of the 1/100 grain tablets for a patient of 150 pounds.

Digifolin has been investigated by Clarke of Ann Arbor by a different method. Table 2 summarizes his results. He gave 5 c.c. doses every twelve hours by mouth, intramuscularly, or intravenously, *until a marked* therapeutic or minor toxic effect appeared. He found that the total amount of the drug to produce these effects by intravenous administration varied from 2 minims per pound to 2.7 minims, averaging 2.36 minims. This is seen to be about eight times the minimal effective dose I have found for intravenous administration by the T wave method. By intramuscular injection, Clarke found that the average full therapeutic dose of digifolin was 3 minims per pound, slightly more than needed intravenously; while by mouth it was 3.56 minims per pound, which is twelve times the amount producing the minimal T wave change when given intravenously.

These figures for total dosage of digifolin are in agreement with those I have obtained for partial dosage of this preparation, so it seems still more certain that this one at least, if not all of these intravenous preparations, must be given in much larger amounts than has been the custom when it is desired to obtain prompt therapeutic effects. Doses of the size here recommended, from 90 to 160 minims (6 to 11 c.c.) of the liquid preparations, have been given *to previously untreated patients* in the course of these experiments without unpleasant effects.

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[2] Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. **16**: 1 (July) 1915.

It is always necessary, when suggesting large doses of any digitalis preparation, to emphasize the need of making certain that the patient has not been receiving digitalis in any form during the previous two weeks. The drug is sometimes so slowly eliminated that a patient may retain an unexpectedly large proportion of a previous dose, and the additional effect of the later dose may cause unpleasant toxic symptoms. The doses here recommended are only for patients who have not had any digitalis within the previous two weeks. For patients who are under the influence of digtalis at the time, the dose should be reduced to one quarter or one half of that recommended, to from 30 to 60 minims, depending on our estimate of the degree of the patient's previous digitalis saturation. This reduced dose should be repeated at six hour intervals if needed, and perhaps one should reduce it further each time, making certain before each dose that no signs of a digitalis effect have made their appearance.

The second claim for intravenous medication, its greater promptness of action, I have not yet fully investigated, but the facts so far are as follows:

1. With the minimal effective dose or a dose but slightly larger, the T wave and the rate with untreated auricular fibrillation are not affected until from five to ten hours after intravenous administration.

2. After doses of the tincture by mouth equal to 1 minim per pound or more, the T wave and the rate with untreated auricular fibrillation may be affected as early as the second hour, and the effect reaches its maximum about the sixth or seventh hour.[1]

3. After rectal administration of digitalis in doses larger than 1 minim per pound [3] (proportion not stated by the investigator) the T wave was affected on the average in two and one-half hours.

Further observations are needed to settle this question. The facts just noted make it seem likely that the promptness of action is more dependent on a mass effect of digitalis—the large size of the dose—than on the greater promptness with which the drug comes in contact with the heart muscle after intravenous administration.

We must not rely then on minimal intravenous doses when in need of a prompt effect, though it is possible that somewhat smaller doses are needed by vein than by mouth. This matter is being further investigated.

160 East Sixty-Fourth Street.

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3. Levy, R.: Rectal Digitalis Therapy Arch Int Med **33**: 742 (June) 1924.

Bacteriology of "Colds."—Little is definitely known about the bacteria causing the common colds Undoubtedly, the term "cold" is used for a variety of affections etiologically distinct. Pneumococci and streptococci, as well as the influenza bacillus and even the tubercle bacillus, may be responsible for the train of symptoms to which the name "cold" is popularly applied Colds are apparently largely spread by close personal contact and by the infectious droplets discharged in sneezing and coughing Whether certain micro-organisms are more commonly concerned in the production of colds than others is quite uncertain. Some specific organisms have been implicated An anaerobic organism has been found in some series of cases of acute and chronic rhinitis and has given rise to rhinitis when introduced experimentally into the nose of a healthy person. Specific antibodies are present in the serums of persons infected experimentally and of those suffering from a natural infection with this bacillus.—Jordan, E. O.: General Bacteriology, Ed 8, Philadelphia, W. B Saunders Company, 1924

NONSYPHILITIC AORTITIS *

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Aortitis, an inflammatory condition of the aorta, has been recognized as a clinical and pathologic entity for many years. From the purely pathologic standpoint, it has been described so frequently and in such detail that the picture seems complete. This refers especially to the literature of fifteen or twenty years ago, and to a few recent reports. A striking commentary is the comparative scarcity of references in the American and English literature. Very early references are those of Aretaeus [1] and Morgagni,[2] and later of Scarpa.[3] The more modern work dates from the report of Portal,[4] in 1803, and Hodgson,[5] in 1815. Portal was the first to describe acute aortitis clinically; and, while there has remained no doubt that aortitis occurs as a pathologic fact, clinicians have been inclined to avoid positive statements, especially regarding early diagnosis. In fact, the feasibility of making an early diagnosis of aortitis remains a real question in the minds of some of our best medical men. This refers particularly to the nonsyphilitic variety. Aortitis of syphilitic etiology is well established, and one that is confirmed in daily practice. That other infections may play a similar rôle is equally evident, but this some deny and many others seem to forget.

That both acute and chronic aortitis not due to syphilis are not rare disease conditions is quite evident from only a partial review of the literature. While it is true that many of these reports are entirely clinical, a sufficient number include complete pathologic and bacteriologic studies. Excellent general discussions have been contributed by Satterthwaite,[6] Hirschfelder,[7] McCrae,[8] Pitt,[9] Brown,[10] Spiro [11] and others.

Evidence in support of the protean etiology of aortitis is to be found in the following abbreviated summary of this angle of the disease: Aortitis due to tuberculosis has been reported by Flexner [12] and von Zalka;[13] influenza, by Fiessinger,[14] Marmorstein,[15] Allbutt [16] and Oetiker;[17] typhoid fever, by Thayer,[18] Landouzy and Siredey,[19] and Marchiafava and Nazari;[20] streptococcus infection, by McCutcheon[21] and Koritschoner;[22] pneumococcus infection, by D'Antona;[23] gout, by Mougeot,[24] and rheumatic fever, by McCrae,[8] Navarro[25] and Luzzatto.[26] Rheumatic fever seems worthy of special mention as it plays such an important rôle in cardiovascular infections, and it is interesting to note that Klotz has observed small areas of sclerosis with cellular infiltration in the adventitia and media of arteries in cases of this disease. These areas bear some resemblance to the Aschoff bodies found in the heart. Recently, Oetiker[17] conducted a bacteriologic study in twenty-three cases, and he was able to isolate an organism in twenty cases. He found streptococci, staphylococci, pneumococci, influenza bacilli and, in one case, anthrax bacilli.

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1 Aretaeus On the Causes and Symptoms of Acute Disease, London, 1856, Book II, p 445 (trans after Satterthwaite)

2 Morgagni: On the Seat and Causes of Disease **1**: 389 (trans after Satterthwaite).

3 Scarpa: Reflections et observations anatomico chirugicales, Paris, 1809, 1 (after Satterthwaite)

4 Portal Cours d'anatomie médicale **3**: 144, 1803

5. Hodgson, Joseph Diseases of Arteries and Veins, London, 1815

6. Satterthwaite, T. E Diseases of the Heart and Aorta, 1905

7. Hirschfelder, A: Diseases of the Heart and Aorta, 1913

8 McCrae, T. Dilatation of the Aorta, Am J. M Sc **140**: 469 487, 1910

9 Pitt, G N, et al Discussion on the Etiology of the Degenerative Changes in the Aorta, Brit M. J **2**: 1063 1069, 1908

10. Brown, G E Acute Infectious Aortitis, with Report of Cases, Ann Med **1**: 254 265 (July) 1920

11. Spiro, H Chronic Aortitis, a Brief Discussion of Its Clinical Signs and of the Usefulness of an Angle Finder during the Fluoroscopic Examination of the Thoracic Aorta, M Clin N. Am. **6**: 1587 1605 (May) 1923

12 Flexner, S. Bull Johns Hopkins Hosp, 1891

13 Von Zalka, E Zwei Falle von Tuberkuloser Aortenperforation, Virchows Arch f path Anat **251**: 685 698, 1924

14 Fiessinger, C Aortitis, Acute and Chronic, Med. Press. & Circ. **107**: 220, 1919

15 Marmorstein, M Acute Grippe Aortitis; Case with Basilar Thrombosis, Med Obozr **68**: 577 601, 1907

16 Allbutt, Clifford Diseases of the Arteries **2**: 163

17 Oetiker, L Ueber Akute Aortitis Besonders als Komplikation der chronischen Erkrankungen der Aorta, Schweiz med. Wchnschr. **54**: 459 482 (May 15) 1924

18 Thayer, W S On the Late Effects of Typhoid Fever on the Heart and Blood Vessels, Am J. M Sc **127**: 391, 1904.

19 Landouzy, L, and Siredey, A.: Etude des localizations angiocardiques typhoidiques, leurs consequences immédiate prochaines et éloignees, Rev méd. **7**: 804 919, 1887.

20 Marchiafava, E, and Nazari, A.: La malattia di Take Jonnesco (aortite ulcerosa tifica), Policlinico (sez. med) **30**: 1-7 (Jan) 1923.

After reading the comparatively scanty literature and noting with surprise the lack of attention given to the subject in standard textbooks, I was still somewhat hesitant to discuss again what should be a familiar and well understood disease. However, I have observed acute and chronic nonsyphilitic aortitis so frequently, usually after being classed as some other condition, that I feel justified in this presentation. It offers the opportunity to emphasize that many of the cases are of nonsyphiltic etiology; that aortic disease is much more common than generally supposed; that early diagnosis can and should be made, and that more attention should be given to the aorta in our routine examinations. It is to be regarded as a not uncommon disease, commonly overlooked.

At this time it would seem wise to limit the discussion to that of the thoracic aorta, as it was this portion of the vessel which was affected in the series studied, and it is the portion usually involved. On the other hand, the abdominal aorta is also subject to similar inflammatory processes. The French recognize an "abdominal aortitis" (aortite abdominal aigue) as a clinical disease entity. As described by them, it is accompanied by angiospasm, with symptoms similar to those of angina pectoris in the chest.

THE AORTA

Certain special anatomic and physiologic characteristics of the aorta now present themselves for consideration. Like all arteries, it consists of three coats, intima, media and adventitia. The inner coat consists of a single layer of endothelium with a thin underlying layer of connective tissue stroma. The middle coat, or media, consists of connective tissue with varying amounts of smooth muscle fibers and elastic fibers. The outer coat, or adventitia, is essentially connective tissue, loosely arranged, and contains numerous nerve plexuses. Nutriment to the vessel wall is obtained either by imbibition through the endothelial cells from the blood in the lumen, or through the small vessels to the artery, the vasa vasorum. Infection may likewise follow either course. The aorta differs essentially from the other arteries of the body in that, in the latter, the media consists of a large proportion of muscle fibers. On the other hand, the aorta contains relatively few muscle fibers, but many elastic fibers. The difference in the structure of the aorta from the rest of the arterial system is due to the difference in the function of the two. The body contains only a limited quantity of blood, which must be distributed according to the ever-changing needs of the various systems. Thus, for example, the arteries of the splanchnic area must contract to supply the brain, or the arteries of the skin must contract to supply the intestines, and so on indefinitely. However, the aorta does not enter actively into this system of reciprocal supply. Therefore, it is poor in muscle tissue, but rich in elastic fibers, as it must dilate and immediately return to the normal, continuously. Probably no organ in the body bears the brunt of such constant lashing as the aorta. It must withstand the shock of each systole twenty-four hours every day, and in addition it must bear the burden of all excess activity. Little wonder, then, that this overworked artery seldom passes middle life without showing some damage, and that it is so frequently the site of acute or chronic infection.

Another fundamental consideration is the generally accepted fact that muscle and elastic fibers do not regenerate, in contradistinction to connective tissue. For this reason, infection and subsequent damage sufficient to destroy muscle and elastic fibers are not followed by regeneration but by fibroblastic proliferation. The contractility and elasticity of the aorta are thus lost, and dilatation becomes permanent. With this in mind, early diagnosis is of paramount importance.

PREDISPOSING FACTORS

The predilection of the ascending aorta and the arch for any type of infection has been clarified by the work of Klotz.[27] He has shown that the lymphatic supply of the aorta is not uniform; in certain areas the lymphatics are present in great numbers, while in other regions the distribution is meager. The ascending aorta appears to have lymphatics in common with the pericardium and also communications with a group of nodes that join the lymphatics of the anterior mediastinum. Around the arch of the aorta are found lymphatics supplying the aortic wall. These connect with nodes in the anterior mediastinum, with those around the trachea, and with those at its bifurcation. The descending aorta has a variable number of lymph nodes, particularly along its right border, which form a plexus around the exit of the intercostal arteries. This lymphatic system is in direct communication with the two large drainage beds of the body, the one in the thorax and the other in the abdomen.

Another predisposing factor, according to Westenhöfer,[28] is based on phylogenetic grounds. He believes that aortitis, like appendicitis, tuberculosis of the apex of the lungs and certain diseases of the pelvis of the kidney, originates on a phylogenetic basis. Aortic disease is seldom found in animals, and is directly associated with man's upright position. Like tuberculosis, this disease develops from childhood and becomes more pronounced with age because of the changing growth and position of the thorax and spinal column. In the case of the aorta, the relation between the thorax and the vertebral column becomes particularly unfavorable, because a certain disproportion takes place between the growth of the spinal column and that of the aorta. The former grows more rapidly than the aorta, which produces a displacement of the exits of the intercostal arteries, so that the original proportion between the parts is disturbed. A similar disturbance occurs within the spinal canal, between the spinal column and the spinal cord. Also, while in the animal the spinal column forms a softly curving posteriorly convexing arch, against which bone pressure is reduced to a minimum, the human spinal column in the upright position is convexing forward in its lower half. To this protruding, often very uneven, column, the aorta is to a certain extent attached. It is constantly pulled lengthwise and sidewise under the influence of the blood stream, while the posterior wall is to a certain extent squeezed between the blood stream and the spinal column. The greater the disproportion between the growth of the aorta and the spinal column, the narrower and the more stretched lengthwise the aorta becomes. But in spite of the phyletic disposition of the apex of the lungs or of the appendix, not everybody develops tuberculosis of the lungs or appendicitis; and so, not everybody develops aortic disease. Westenhöfer believes that there is the added stimulus of constant physical, mental, moral and toxic strain of our present-day life. It is evidently a disease of civilization.

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[21] McCutcheon, M.: Acute Ulcerative Aortitis, Proc. Path. Soc. Philadelphia **23:** 96, 1920-1921.

[22] Koritschoner, R.: Beitrag zur Kenntnis der myokotischen Aortitis, Centrabl. f. allg. Path. u. path. Anat. **23:** 100-106, 1912.

[23] D'Antona, S.: Un Caso di Aortite Verrucosa Acuta, Policlinico (sez. med.) **19:** 262-273, 1912.

[24] Mougeot, A.: De l'origine goutteuse, nonsyphilitique, de quelques cas d'aortite chronique, Progrès méd. **29:** 81, 1913.

[25] Navarro, J. C.: Ectasia aortica de originereumatico, Semana méd. **24:** 604-609, 1917.

[26] Luzzatto, A. M.: Sull aortite pneumococcica, Riv. Venèta di Sc. med. **53:** 49-71, 1910.

[27] Klotz, O.: Some Points Respecting the Localization of Syphilis on the Aorta, Am. J. M. Sc. **155:** 92-100 (Jan.) 1918.

[28] Westenhöfer: Ueber die Lokalisation und phylogenetische Grundlage der Verffetungen und Sklerosen der Aorta und ihrer Aesta, Deutsch med. Wchnschr. **48:** 518-520 (April) 1922.

PATHOLOGIC ANATOMY

The pathologic anatomy of aortitis not caused by *Spirochaeta pallida* is well described by Adami,[29] Benda,[30] Sbrocchi,[31] Mallory,[32] Escudero [33] and others. It may be acute or chronic, and may be either an endaortitis or a mesaortitis. The causative agent, bacterial or toxic, may be brought to the site of infection by the blood circulating in the lumen of the aorta, by that of the vasa vasorum, or very occasionally by direct continuity from a neighboring infection. That infection of the intima may be brought by the vasa vasorum was demonstrated by H. F. Swift at the recent meeting of the American Association of Physicians at Washington. Endaortitis is usually verrucose and occasionally ulcerative. If fibrin is deposited, fibrosis usually follows and often calcification. In mesaortitis, the muscle and elastic fibers are attacked and if the involvement is sufficiently extensive, the continuity of these fibers is interrupted.

As stated above, they are not susceptible of regeneration, and fibrosis follows. The inevitable result is dilatation of the aorta. There are attracted to the sites of these infections leukocytes, lymphocytes, endothelial leukocytes and, very rarely, mast cells. The response of these cells to the infection follows the usual rule that only those cells respond that are able to combat the particular type of irritation. These inflammations may occur in the course of any infectious disease, as typhoid, smallpox, scarlet fever, erysipelas, diphtheria, pneumonia, puerperal fever, influenza, rheumatism or tuberculosis, and in any condition in which there are foci of infection. While one hesitates to point an accusing finger again at infected teeth and tonsils, sufficient evidence has been accumulated to warrant the statement that they may be the source of infection.

In passing, it would seem fit to mention that both endaortitis and mesaortitis have been produced experimentally in animals, and that the lesions are closely allied to those seen in men. This refers in part to the work of Josue,[34] Gilbert and Lion,[35] Saltykow[36] and others.

CAUSATION

From the evidence at hand, it also seems reasonable to assume that certain other factors play a decided rôle in the production of this disease. Continuous overactivity of either the physical or nervous varieties, excesses of tobacco, alcohol and overeating seem to be secondary factors, although no scientific data can be furnished to fortify this statement. The present-day high pressure methods of both work and play probably assume the same rôle in the causation of this condition as they do in other degenerative diseases, especially those of the cardiovascular system.

SYMPTOMS

The aortic syndrome presents a picture in which there is a fairly constant group of subjective and objective symptoms. Since the object of this paper is propaganda for its recognition in early and mild cases, a word of warning is sounded that these symptoms are present in varying degrees in different cases. To detect them, therefore, it is necessary to use considerable vigilance.

Pain is one of the most constant symptoms. It is usually of the retrosternal variety in the region of the upper third, occasionally a little lower. It sometimes radiates into either arm, but this is not common. While it occasionally assumes the character of angina pectoris, it is more often a sensation of fulness, pressure or tightness. It frequently interferes with deep inspiration, and the patient sometimes complains that the heart feels as if it were turning over. It may occur without any known stimulus, but it usually follows physical exertion, such as climbing stairs or even a slight incline. Even walking on the level may produce it, and the person finds relief by stopping for a few minutes, after which the walk may be resumed. It is always more noticeable in cold weather, and it may be activated by simply coming into the cold from a warm room. This aortic discomfort, varying from a slight feeling of pressure to one of actual anginoid pain, is probably due to changes in intra-aortic pressure reacting on a diseased aortic wall. The source of the pain is in the nerve plexuses in the loose areolar tissue of the adventitia, according to the work of Thomas [37] and of Allbutt.[16] It has not been possible to demonstrate any relation between the amount of involvement of the aortic wall and the degree of pain, the anatomic damage being estimated by physical examination, roentgen-ray study and postmortem examination. The pain is to be differentiated from cardiac pain, which is usually precordial and near the apex, while that of aortitis is definitely retrosternal, usually in the upper third.

Dyspnea usually accompanies the sensation of pain, and it may occasionally be the predominating symptom. It may be present without pain. It is activated by the same conditions as in pain, especially physical exertion and cold. Along with the dyspnea there may be a more or less severe cough, and Boinet [38] believes that both of these symptoms may be due to an irritation of the first part of the aorta. In cases of extreme dilatation of the aorta, a chronic cough may appear as the result of pressure on the recurrent laryngeal nerve. Babin[39] classifies aortic dyspnea under three heads: (1) dyspnea from exertion appearing on the slightest provocation; (2) paroxysmal dyspnea, especially during inspiration and usually occurring after the subject has been asleep for a short time, at least in the early stages of the disease, and (3) dyspnea, almost always painful, and accompanied by very disagreeable sensations.

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[29] Adami, J. G., and Nicholls, A. G.: System of Pathology **2**: 176, 1911.

[30] Benda, in Aschoff, Ludwig: Pathologische Anatomie **2**: 76, 1913.

[31] Sbrocchi, A.: Aortite cronica, Folia méd. **8**: 257-297, 1922.

[32] Mallory, F. B.: The Infectious Lesions of Blood Vessels, M & S. Rep., Boston City Hospital, Series 16, 1913, pp. 148-163.

[33] Escudero: Etiologia del'aortite acuta, Gazz. med. sicil., Catania **17**: 10-12, 1914.

[34] Josue, O.: Atherome aortique expérimental par injections d'adrénaline dans les veines, Compt. rend. Soc. de biol. **55**: 1374, 1903.

[35] Gilbert, A., and Lion, G.: Arterites *infectueuses expérimentales* Compt. rend. Soc. de biol. **41**: 583, 1889.

[36] Saltykow, A.: Experimentelle Forschung in der Lehre der Arteriosklerose, Zentralbl. f. d. ges. Physiol. u. Path. d. Stoffwechs. **3**: 654, 1908.

[37] Thomas, cited by Brown (Footnote 10).

[38] Boinet: Maladies des artères, cited by Brown (Footnote 10).

Tachycardia is frequently an outstanding symptom and is one that the patient often observes himself. It is seldom accompanied by any irregularity. It may appear on slight exertion, but it may be entirely spontaneous. Even when fever is present, it is out of proportion to the rise of temperature. In some cases, it persists even after long periods of absolute rest in bed. The blood pressure is never high in uncomplicated cases. It is seldom above normal and is quite frequently subnormal, the latter condition probably being due to the dilated and rigid condition of the aorta and its interference with the normal blood stream.

Fever is present in many cases of acute and chronic aortitis. Popoff[40] has discussed this feature in detail. It seems probable that it is not recorded more frequently because it has not been taken regularly, many of the patients are not hospitalized, and those remaining at home do not require the services of a nurse. It is usually not very high, seldom reaching above 101. It is extremely irregular. It varies in its diurnal excursions, appears for a few days or weeks, and disappears for similar indefinite periods. It resembles somewhat the irregular fever of subacute endocarditis. In the absence of any other demonstrable cause for the hyperpyrexia, and with the other symptoms of aortitis present, the reasonable inference is that it is due to an active aortic inflammation. It is interesting to note that the usual antipyretics, such as the salicylates and coal tar products, fail to influence the fever.

Edema of the extremities of a very slight degree has occasionally been noted and has been reported, but it is not common. When it is present, cardiac disease as a cause must be eliminated.

RESULTS OF EXAMINATION

Physical examination offers a most interesting study in this group of cases. Changes in the aortic wall are the first to be considered, and are caused by a weakened wall, especially the media. Stretching of the aortic wall first produces an elongation and shortly afterward an increase in diameter. With the lengthening, the arch is raised, thus producing one of the most typical signs, suprasternal pulsation. Concurrently, both subclavian arteries are elevated above the clavicles, the right appearing first, on account of its anatomic position. There are then produced visible supraclavicular pulsations, also typical findings in this condition.

Widening of the aorta may be demonstrated by percussion to the right of the sternum in the second and third interspaces, although this is very difficult in very early cases. In fact, the actual widening in the incipient cases is probably so slight that it is impossible.

The signs to be elicited by auscultation over the aortic area remain a matter of some discussion. There is usually a distinct soft blowing or roughened murmur best heard in the second interspace close to the border of the sternum. If it is at all distinct, it can be followed along the course of the aorta, even down the left side of the sternum. It is sometimes transmitted to the great vessels of the neck. In the incipient and very mild cases, it sometimes requires a little exercise to make it audible, and is best heard in the upright position. Kukovieroff[41] has called attention to a most interesting phenomenon in this connection. Following the suggestion of Sirotinin, he states that this systolic murmur can be heard in the incipient cases with the patient in the upright position with the hands on the head, and that it is not audible when the hands are at the side. It is heard in the second right interspace or over the sternum in this region, and it is to be differentiated from the murmurs of pericarditis, venous hums and cardiopulmonary murmurs that are also heard in this region. I have confirmed these findings in observations in a few cases, and also find a marked accentuation of a systolic murmur, which is already present. Another important sign is an accentuated, second aortic sound. The latter is loud, ringing and bell-like. A diastolic murmur, due to involvement of the aortic valves, or a stretching of the aortic ring, is certainly not a necessary accompaniment. In fact, it is seldom found in the nonsyphilitic variety of aortitis.

Sensitiveness to pressure over the sternum or of the aorta itself in the suprasternal notch is a symptom occasionally to be found. Pressure symptoms are not frequent and are usually seen late in the disease. They are most unusual in the early and mild cases. They include pressure on the recurrent laryngeal nerve, the bronchi, the trachea and the sympathetic nerves, the latter with pupillary changes. While not frequent, they are very important when observed. Gerber[42] states that paresthesia of the neck is frequently an early symptom due to irritation of the sensory fibers of the recurrent laryngeal nerve. The galvanopalpation methods proposed by Zak[43] and Kahane[44] apparently do not possess definite diagnostic value.

Roentgen-ray studies have proved to be of tremendous diagnostic and corroborative value in the conduct of this disease. Reports have been made by Leconte,[45] Bailey,[46] Frazer and MacRae,[47] and many others. Spiro[11] has proposed the use of the angle finder in these studies. Varying with the severity of the disease process, roentgenographic examination will show the following important variations from the normal: (1) an increase in the size of the aorta; (2) an accentuation of the aortic opacity, and (3) a more or less marked increase in the size of the heart. The size of the heart is of some prognostic moment since it shows the amount of cardiac resistance.

REVIEW OF CASES

The cases presented here have been selected with age as the deciding factor, all of the patients being under 40. This has been done to refute the general conception that nonsyphilitic aortitis and dilatation are essentially a sclerosis and an incident of advancing age. There are twenty-nine cases, and at the following ages: one, 18; two, from 20 to 25; six, from 25 to 30; twelve, from 30 to 35, and eight, from 35 to 40.

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[39] Babin, R.: A Clinical Study on Dyspnea in the Aortic Syndrome, Internat. Clin. **2:** *222-240, 1919.*

[40] *Popoff*, P. M.: Aortitis und Fieber, Ztschr. f. klin. Med. **75:** 506-517, 1912.

[41] Kukovieroff, N. G.: Diagnosis of Incipient Sclerosis of the Aorta, Russk. Vrach. **9:** 1944-1952, 1910.

[42] Gerber.: Paraesthesien des Halses als Frühsymptom bei Erkrankungen der Aorta Deutsch. med. Wchnschr. **45:** 167, 1919.

[43] Zak.: Vasomotorische Zonen bei Aortenkranken, München. med. Wchnschr. **66:** 703, 1919.

[44] Kahane, M.: Ueber Gefässreaktion bei Aortenaffektionen, Wien klin. Wchnschr. **33:** *616, 1920.*

[45] Leconte, M.: Interpretation of Radioscopic Findings in Certain Forms of Aortitis, Presse méd. **31:** 463-467 (May) 1923.

[46] Bailey, S. E.: Disease of the Aorta as Shown by Fluoroscopic Study, California State J. Med. **16:** 490 (Nov.) 1918.

[47] Frazer, T., and MacRae, J. D.: X-Ray Diagnosis of Aortitis, South. M. J. **15:** 261-268, 1922.

There were nineteen females and ten males, which does not correspond with the usual statistics, but this is unimportant in a small series. Syphilis was excluded by careful examination and repeated Wassermann reactions, and in some cases, a provocative Wassermann reaction. Every possible effort was made in the exclusion of syphilis. These patients either presented themselves with symptoms referred to the thorax, or were discovered in the course of a general examination. The latter group described symptoms on careful questioning, and many of these symptoms were found to have been present for some time, but had been disregarded by the patient. Nine of these cases were of the mild or incipient type, seventeen were moderately severe, and three were of the severe type.

None of these cases appeared to be secondary to an infectious disease, so that some other etiologic factor had to be sought. Apology is again offered in mentioning foci of infection in the teeth and tonsils, but, in the absence of other sources of infection, suspicion naturally pointed in this direction. For this reason, all possible sources of infection from the teeth and tonsils received thorough and radical treatment. The gastro-intestinal tract also received attention on the theory that it might be the source of toxemia.

In four of the nine mild cases there was spontaneous pain or dyspnea, and in the other five, discomfort after physical activity. Tachycardia was not present, and the blood pressure was slightly subnormal in all. Fever of the usual irregular type was present in only one case. A systolic aortic murmur in the second right interspace was found in eight, exercise in the other case being required to make it audible. In these mild cases, the murmur was transmitted very little. The second aortic sound was accentuated in all, and was usually ringing. Slight suprasternal pulsation was present in seven, and sternal and aortic tenderness in two. Three of these persons showed a marked secondary type of anemia. In none of these cases could a widening of the aorta be demonstrated by percussion. Roentgen-ray examination showed a slight lengthening in two.

In the moderately severe group, all seventeen patients complained of some degree of retrosternal discomfort, always increased by activity or excitement, and tenderness was present in eight. Dyspnea on slight provocation was present in all. Tachycardia, varying from 90 to 130, was observed in eleven. The blood pressure was slightly increased in one case (145 systolic, 90 diastolic); was normal in six, and was subnormal in ten. Fever lasting from one month to six months was found in six cases and was of the irregular type desscribed above. A distinct systolic aortic murmur was present in all the cases, increased by exercise and by placing the hands on the head. It was transmitted according to its intensity. The second aortic sound was always definitely accentuated. Suprasternal pulsation accompanied by pulsations above the clavicles were also always present. Roentgen-ray examinations made in ten showed positive evidence of aortic disease in seven. Sternal and aortic tenderness was found in six.

The three severe cases presented all the classical symptoms to a marked degree. They showed marked retrosternal pain and fulness, two presenting rather typical aginoid paroxysms. There was also dyspnea and tachycardia. The suprasternal and supraclavicular pulsations were very striking, and there was also sternal and aortic tenderness. One patient was afebrile; the other two had fever ranging between 99 and 101 F., lasting from five months, in one case, to nine months, in the other. As usual, there were frequent periods during this time when there was no fever. The blood pressure was slightly elevated in one (155 systolic, 95 diastolic); slightly subnormal in one (100 systolic, 64 diastolic), and in the third showed striking variations from subnormal to elevated blood pressure. Roentgen-ray studies showed aortic dilatation in all three cases. Complications were practically absent. The case showing variations in blood pressure showed evidence of myocardial weakness during the periods of subnormal blood pressure. It is very interesting to note that none of these severe cases showed any suggestion of impairment of kidney function.

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TREATMENT

Treatment first should be directed to the removal of all foci of infection. Rest in bed is usually necessary, and the time may vary from several weeks to six months or more. The severity of the disease will regulate the length of time to be spent in bed. In cases not requiring rest in bed, and in those after such a rest, careful regulation of daily habits and exercise is necessary. Rest in the recumbent position for one or two hours in the middle of every day is especially recommended, for the mild and convalescent cases, over long periods of time. Iodids are usually given in large doses for a long time, on purely empiric grounds. Symptoms are to be treated as they arise. The careful regulation of the diet is important. Overeating in general is to be avoided, and especially animal protein and the meat extractives. Tea, coffee, alcohol and tobacco are to be used in great moderation. In fact, moderation in all things is a very good rule.

SUMMARY

1. Twenty-nine cases of nonsyphilitic aortitis showed a sufficient number of the classical symptoms to warrant a definite diagnosis. The patients were all under 40 years of age.

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pressure on the recurrent laryngeal nerve. Babin[39] classifies aortic dyspnea under three heads: (1) dyspnea from exertion appearing on the slightest provocation; (2) paroxysmal dyspnea, especially during inspiration and usually occurring after the subject has been asleep for a short time, at least in the early stages of the disease, and (3) dyspnea, almost always painful, and accompanied by very disagreeable sensations.

Tachycardia is frequently an outstanding symptom and is one that the patient often observes himself. It is seldom accompanied by any irregularity. It may appear on slight exertion, but it may be entirely spontaneous. Even when fever is present, it is out of proportion to the rise of temperature. In some cases, it persists even after long periods of absolute rest in bed. The blood pressure is never high in uncomplicated cases. It is seldom above normal and is quite frequently subnormal, the latter condition probably being due to the dilated and rigid condition of the aorta and its interference with the normal blood stream.

Fever is present in many cases of acute and chronic aortitis. Popoff[40] has discussed this feature in detail. It seems probable that it is not recorded more frequently because it has not been taken regularly, many of the patients are not hospitalized, and those remaining at home do not require the services of a nurse. It is usually not very high, seldom reaching above 101. It is extremely irregular. It varies in its diurnal excursions, appears for a few days or weeks, and disappears for similar indefinite periods. It resembles somewhat the irregular fever of subacute endocarditis. In the absence of any other demonstrable cause for the hyperpyrexia, and with the other symptoms of aortitis present, the reasonable inference is that it is due to an active aortic inflammation. It is interesting to note that the usual antipyretics, such as the salicylates and coal tar products, fail to influence the fever.

Edema of the extremities of a very slight degree has occasionally been noted and has been reported, but it is not common. When it is present, cardiac disease as a cause must be eliminated.

RESULTS OF EXAMINATION

Physical examination offers a most interesting study in this group of cases. Changes in the aortic wall are the first to be considered, and are caused by a weakened wall, especially the media. Stretching of the aortic wall first produces an elongation and shortly afterward an increase in diameter. With the lengthening, the arch is raised, thus producing one of the most typical signs, suprasternal pulsation. Concurrently, both subclavian arteries are elevated above the clavicles, the right appearing first, on account of its anatomic position. There are then produced visible supraclavicular pulsations, also typical findings in this condition.

Widening of the aorta may be demonstrated by percussion to the right of the sternum in the second and third interspaces, although this is very difficult in very early cases. In fact, the actual widening in the incipient cases is probably so slight that it is impossible.

The signs to be elicited by auscultation over the aortic area remain a matter of some discussion. There is usually a distinct soft blowing or roughened murmur best heard in the second interspace close to the border of the sternum. If it is at all distinct, it can be followed along the course of the aorta, even down the left side of the sternum. It is sometimes transmitted to the great vessels of the neck. In the incipient and very mild cases, it sometimes requires a little exercise to make it audible, and is best heard in the upright position. Kukovieroff[41] has called attention to a most interesting phenomenon in this connection. Following the suggestion of Sirotinin, he states that this systolic murmur can be heard in the incipient cases with the patient in the upright position with the hands on the head, and that it is not audible when the hands are at the side. It is heard in the second right interspace or over the sternum in this region, and it is to be differentiated from the murmurs of pericarditis, venous hums and cardiopulmonary murmurs that are also heard in this region. I have confirmed these findings in observations in a few cases, and also find a marked accentuation of a systolic murmur, which is already present. Another important sign is an accentuated, second aortic sound. The latter is loud, ringing and bell-like. A diastolic murmur, due to involvement of the aortic valves, or a stretching of the aortic ring, is certainly not a necessary accompaniment. In fact, it is seldom found in the nonsyphilitic variety of aortitis.

Sensitiveness to pressure over the sternum or of the aorta itself in the suprasternal notch is a symptom occasionally to be found. Pressure symptoms are not frequent and are usually seen late in the disease. They are most unusual in the early and mild cases. They include pressure on the recurrent laryngeal nerve, the bronchi, the trachea and the sympathetic nerves, the latter with pupillary changes. While not frequent, they are very important when observed. Gerber[42] states that paresthesia of the neck is frequently an early symptom due to irritation of the sensory fibers of the recurrent laryngeal nerve. The galvanopalpation methods proposed by Zak[43] and Kahane[44] apparently do not possess definite diagnostic value.

Roentgen-ray studies have proved to be of tremendous diagnostic and corroborative value in the conduct of this disease. Reports have been made by Leconte,[45] Bailey,[46] Frazer and MacRae,[47] and many others. Spiro[11] has proposed the use of the angle finder in these studies. Varying with the severity of the disease process, roentgenographic examination will show the following important variations from the normal: (1) an increase in the size of the aorta; (2) an accentuation of the aortic opacity, and (3) a more or less marked increase in the size of the heart. The size of the heart is of some prognostic moment since it shows the amount of cardiac resistance.

REVIEW OF CASES

The cases presented here have been selected with age as the deciding factor, all of the patients being under 40. This has been done to refute the general conception that nonsyphilitic aortitis and dilatation are essentially a sclerosis and an incident of advancing age. There are twenty-nine cases, and at the following ages: one, 18; two, from 20 to 25; six, from 25 to 30; twelve, from 30 to 35, and eight, from 35 to 40.

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[39] Babin, R.: A Clinical Study on Dyspnea in the Aortic Syndrome, Internat. Clin. **2**: 222-240, 1919.

[40] Popoff, P. M.: Aortitis und Fieber, Ztschr. f. klin. Med. **75**: 506-517, 1912.

[41] Kukovieroff, N. G.: Diagnosis of Incipient Sclerosis of the Aorta, Russk. Vrach. **9**: 1944-1952, 1910.

[42] Gerber.: Paraesthesien des Halses als Frühsymptom bei Erkrankungen der Aorta. Deutsch. med. Wchnschr. **45**: 167, 1919.

[43] Zak.: Vasomotorische Zonen bei Aortenkranken, München. med. Wchnschr. **66**: 703, 1919.

[44] Kahane, M.: Ueber Gefässreaktion bei Aortenaffektionen, Wien. klin. Wchnschr. **33**: 616, 1920.

[45] Leconte, M.: Interpretation of Radioscopic Findings in Certain Forms of Aortitis, Presse méd. **31**: 463-467 (May) 1923.

[46] Bailey, S. E.: Disease of the Aorta as Shown by Fluoroscopic Study, California State J. Med. **16**: 490 (Nov.) 1918.

[47] Frazer, T., and MacRae, J. D.: X-Ray Diagnosis of Aortitis, South. M. J. **15**: 261-268, 1922.

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3. It is apparently one of the few diseases of the cardiovascular system that offers a chance for complete restoration to the normal when a diagnosis is made in its incipiency.

4. It is a not uncommon disease, commonly overlooked.

1638 Sixteenth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. PARDEE AND NEUMAN

Dr. William D. Reid, Boston: In regard to the question of nonsyphilitic aortitis, I agree with Dr. Neuman. We should all think about this condition more. One point is the systolic murmur at the base: what produces this? It is said to be due to the roughness of the valve or of the aortic wall. In his work, Chauveau denied this. I did some experimental work with Professor Chaffee of Harvard, and we were able to confirm this statement. In the postmortem findings of 100 cases I found that there were many other reasons for the murmur than roughness of the aortic wall. If we consider why we have murmurs in stenosis, it is found to be because of a sudden change in the caliber of the vessel; we get a jet provided there is sufficient pressure and velocity of the stream. Dr. Neuman says that the aorta both elongates and widens. This would produce the jet mechanism. I think that many persons classified as normal have systolic murmurs in the aortic region. We should remember the diagnosis that Dr. Neuman has emphasized, and also that some persons may have such a systolic murmur for years without detriment to health. These people can be kept under observation. At postmortem, other physical changes than roughness alone will be found. These patients need not go to bed or be considered as ill.

Dr. Eugene S. Kilgore, San Francisco: I agree with Dr. Pardee, but cannot go quite all the way with Dr. Neuman in his suggestion of the prevalence of nonsyphilitic aortitis. Possibly geography is partly responsible for the difference in our point of view, since rheumatic infection is relatively uncommon in California, while we have our share of syphilis. The controversy over relative importance of syphilitic infection in the etiology of aortitis has gone on ever since the English physician Welch, fifty years ago, called general attention to the frequent syphilitic etiology. In recent years continental writers have continued to emphasize the frequency of nonsyphilitic aortitis, while American students of the subject have generally come to regard syphilis as the commonest or nearly sole cause of the disease. Syphilis is always difficult to "rule out." A large percentage of its victims are ignorant of the source of infection and give a negative history; and the physical examination and blood tests are often negative. McCrae, while emphasizing the occurrence of nonsyphilitic aortitis, describes one of his own cases of aortitis believed to be nonsyphilitic for several years, until the evidence of syphilis was finally obtained from the spinal fluid. Many patients with syphilitic aortitis undoubtedly lose valuable time before obtaining antisyphilitic treatment, through failure to obtain an early diagnosis. I believe in the existence of nonsyphilitic aortitis, but as a comparative rarity. Such diagnosis can doubtless be made with reasonable certainty if, in the presence of such an infection as rheumatic fever, definite changes in signs relating to the aorta, tenderness in the episternal notch, etc., are observed to develop. But the ordinary case presenting symptoms and signs described by Dr. Neuman, should, in my opinion, be kept under strong suspicion of being syphilitic regardless of all other findings.

Dr. Louis Faugeres Bishop, New York: We have listened with a great deal of pleasure to these papers, but there are certain points that can be considered. In regard to Dr. Neuman's paper, which was a beautiful clinical study of cases actually observed: There have been two schools of cardiology under two great leaders, Sir Clifford Allbutt and Sir James MacKenzie. Dr. Allbutt had the aorta in mind in interpreting such symptoms; Dr. MacKenzie had the heart muscle in mind primarily. I have always been on the side of MacKenzie. I do not take much stock in the theory of the importance of slight signs in the aorta. A tortuous aorta does not do much harm. The blood pressure may increase and cause it to get larger, or the blood pressure may fall and cause it to get smaller. I believe the aorta is usually as good as the heart back of it, and that most of the symptoms attributed to the aorta are cardiac muscle symptoms. I believe the patient should be treated for the heart rather than the aorta. It has been a great pleasure to me in the course of my office consultations to divest patients of worry, who come to me thinking that they are suffering from aortitis. They may have slight changes, but they are not important. I have watched such patients as long as fifteen years, and they finally died of something else. I have never known patients to come to harm from slight changes in the aorta. We have a few cases of aneurysm and a few cases of syphilitic aortitis, but the vast majority of patients with slight changes in the aorta need not cause us any worry. I can think of nothing more productive of misery than to take such a patient with slight changes in the aorta and order complete rest with large doses of iodids. I give nitroglycerin symptomatically. I try to build up the heart muscle and I order exercise outdoors. The aorta looks the same, but the patients are soon well symptomatologically. One can either ignore the aorta and have the patients well, or one can emphasize it and have them invalids. I believe we should build up the heart and keep the patient well. Systolic murmurs due to dilatation of the aorta are due to change in the caliber of the blood vessels. I feel, however, that Dr. Neuman has done good service in pointing out a clinical group of patients of this type. It is a nice study, even if it is one that need not be considered as severely as he does. Dr. Pardee's paper is a valuable contribution to the question of digitalis. There are one or two points of importance. One valuable clinical point is that the dosage of digitalis should be regulated by the size of the heart. When I get a child or young person with a very large heart, I have to give large doses to get the effect. When the heart is of normal size, the dosage is not so great. The recognition of the importance of adequate doses of digitalis is one of the chief accomplishments of modern cardiology. There is one practical point which is not often thought of; that is, the giving of digitalis by rectum. Sometimes one is called on to treat a serious case with vomiting, and by giving large doses by rectum, well diluted, we can accomplish the desired result. It is a point worth remembering. I think these are the chief points to cover: the relative unimportance of slight changes in the aorta, because the aorta is generally as good as the heart back of it, and the importance of adequate doses of digitalis.

Dr. Lester Neuman, Washington, D. C.: An important conclusion by Westenhofer after long study is that aortitis is much like tuberculosis of the apex of the lungs and also like appendicitis, in that it can be explained on a phylogenetic basis. He bases his conclusions on the fact that there is a marked difference in the development of the thoracic cage and spinal column, producing a marked disproportion between the spinal column, the spinal cord and also the aorta. Another predisposing factor is that no organ in the body must withstand such constant lashing as the aorta. It is subjected to the shock of every systole twenty-four hours every day, and no other organ is subjected to such punishment. Few aortas, therefore, pass middle life without some damage. I wish to emphasize again that muscle fibers and elastic fibers fail to regenerate after being destroyed, and for this reason early diagnosis is of great importance. In emphasizing the observation of Kukovieroff that the systolic murmur of aortitis could be heard best with the hands on the head, I did not wish to give the impression that the diagnosis was based on this systolic murmur alone. It is based, however, on the entire symptom complex. I agree with Dr. Kilgore that the majority of cases are due to syphilis. On the other hand, there is no reason for neglecting the smaller group not due to syphilis. I hesitate to disagree with Dr. Bishop, but I must take the side of Allbutt. I do not believe that we are warranted in disregarding any pathologic condition, whether it be in the aorta or anywhere else in the body, and I therefore do not see how Dr. Bishop can disregard a diseased aorta. While the number of cases is not very large, this group of patients require advice and guidance. I also want to emphasize that every patient is not put to bed and thereby made an invalid. Only the more severe cases require such strenuous treatment. Many of these patients have fever without any other symptoms except those referred to the aorta, and the logical assumption is that the inflammatory condition exists in this organ. Again, referring to the question of rest, whether in bed or not, many of these patients are very uncomfortable after exercising. This is especially true among golf players. I have seen a number of patients who complain of pain and distress in the chest after playing a few holes. It was not possible to demonstrate any cardiac disease, but there were definite signs of the aortitis, and a limitation of their activities produced a marked improvement

Dr. Harold E. B. Pardee, New York: The initial dose of all these drugs must be larger than one ampule if we wish to obtain definite digitalis effects. I have used with good effect one-half minim to the pound of body weight For a person of 150 pounds, 5 c.c., by vein, is the initial dose. I think it might be larger without danger, and am at present attempting to determine how much larger Furthermore, it appears that the action by vein is not much quicker than by mouth, when comparing small doses by vein with large doses by mouth. This gives a still stronger reason for not depending on small intravenous doses for emergency effects in a previously untreated patient.

VISUAL EFFICIENCY OF VARIOUS DEGREES OF SUBNORMAL VISUAL ACUITY

ITS EFFECT ON EARNING ABILITY *

ALBERT C. SNELL, M.D.
ROCHESTER, N. Y.

Among the many complex problems encountered in a study of visual economics is the one relating to the range of useful industrial vision. What is the threshold in the Snellen scale that indicates the beginning of industrial incapacity, and also what is the threshold of complete industrial incapacity?

One may find many expressions of opinion in regard to these two points, but there are not available any recorded and tabulated statistics relating thereto. For this reason I offer a tabulated record of 100 selected cases of defective vision, with a range *in the better eye* from 20/40 Sn. to 5/200 Sn., showing particularly the effect of these various degrees of lowered visual acuity on the individual's ability to work and on his earning capacity.

Magnus and Würdemann[1] state that there is no loss to earning capacity when visual acuity is not less than 0.75 Sn. in those vocations requiring the highest degree of visual acuity; and that there is no loss when visual acuity is 0.5 Sn. or better for those occupations which do not require a high degree of visual acuity. Holt[2] considers that there is no loss to earning ability when visual acuity is 0.8 or better. The Veterans' Bureau of War Risk Insurance does not compensate for loss of visual acuity when the defect is 20/30 Sn. or less. Thus, from these authoritative sources we find that a visual acuity of not less than 20/30 or 20/40 is regarded as causing no loss to earning capacity.

There is a wider range of opinion in regard to the point of total industrial incapacity. Zehender[3] states that 1/100 Sn. renders the individual totally incapacitated for industrial work, while, by a ruling of the New York State Industrial Commission, a 20/100 Sn. is the point of visual acuity from which it computes a total loss of use of an eye. Many points between these extremes have been suggested by various authors and by various committees.

In order to obtain first hand information with regard to the effect which various degrees of loss of visual acuity might have on the earning ability of the individual, I have made a careful investigation of these tabulated cases. I obtained information in most cases by questioning the person as to the nature of his occupation, any difficulty experienced, forced change of occupation, and finally any loss in wages or loss in time as the result of the visual incapacity. I myself examined and interviewed all the patients except 32 to 54, inclusive. The latter were investigated and examined by Dr. Ira Hinsdale, the data being obtained at the Eastman Kodak plant. These people were observed at their work. They were not only personally interviewed in regard to any conscious visual difficulty, but the quality of the work and the efficiency of each employee also was investigated by the foremen or the superintendents of the various departments under whom these persons were working, and their observations were recorded.

In the selection of these cases I have attempted to include only those who were dependent on vision to perform their assigned tasks, and I attempted also to select working people from as many different kinds or classes of employment as was possible. No case of high myopia, with one exception, is included in the list, as I found that many persons with comparatively high myopia, even when such have a considerable reduction to visual acuity for distance (some cases with 20/100 Sn. or less) had very good visual acuity for near, being able to read six point or pearl print at from 10 to 12 inches. All these cases, which would thus have a more favorable effect on the statistics, were rejected.

It is so generally conceded that a visual acuity better than 20/40 Sn. and less than 20/20 Sn. has little or no effect on visual efficiency that only those cases with acuity of not better than 20/40 Sn. are included in the tabulation. However, I have made a study of several hundred industrial employees with visual acuity of 20/25 or 20/33 Sn. in the better eye, and in no instance, no matter how fine or delicate the work might be, did I find that these trivial defects ultimately influenced either the efficiency of the worker or his earning capacity. I give the history of a single case of this class to illustrate this point:

F. T., a man, aged 36, employed as a tool and die maker, has a visual acuity of 20/33 in the right eye and 20/100 in the left eye; he has never used any glasses. For the fine tool work he uses a monocular loop, but for ordinary bench work and other ordinary duties pertaining to the trade of a tool worker, he has never used any glass. He received a serious injury to his left eye two years ago from a penetrating piece of steel. At present there are vitreous and retinal changes, and the eye diverges from 10 to 12 degrees, so that he is dependent entirely on the vision of the right eye. This man receives maximum wages as a tool maker and states that he has not lost a day's work because of any eye trouble; never has headache; has no other symptoms of eye strain, and states further that he has been able to do all his work in a first class and efficient manner. The right eye shows a moderate degree of far sighted astigmatism. His visual acuity is not better at the near point.

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* Read before the Section on Ophthalmology at the Seventy Sixth Annual Session of the American Medical Association, Atlantic City N. J., May, 1925.

[1] Magnus and Würdemann: Visual Economics, p. 117. Würdemann: Am. J. Ophth., April, 1922, p. 321.

[2] Holt: Tr. Am Acad. Ophth. & Oto-Laryngol, 1914.

[3] Zehender: Klin. Monatsbl. f. Augenh, 1889, p. 268.

Visual defects even of this minor class, when recently acquired, do cause some degree of inefficiency for a time, but after two or three months have elapsed this is overcome entirely. Despite this fact, I wish to point out that with repeated trivial injuries causing slight defect in vision, there follows an accumulated effect. The total effect of two or more injuries which alone would cause only a slight disturbance to acuity will be sufficient often to interfere with the worker's efficiency. For example, a single injury, that reduces visual acuity to 20/30 Sn. would not interfere with one's working ability. But assuming a second injury of the same degree that would reduce the acuity to 20/40, and a third

One Hundred Cases of Visual Acuity Impairment, Ranging from 20/40 to 3/200 Snellen in the Better Eye

Case	Present Age, Sex*	Occupation	Vision with Correction		Glasses	Refraction	No of Years Defective	Cause for Defect	Loss to Earning Ability	Lost Time, Pay	Comment
			O D.	O. S							
1	32, ♀	Tailor	L	20/60	Yes	H	20	Corneal opacity	None	Married, did not work 1 year	Always received the maximum wages
2	42, ♂	Mail carrier	20/40	20/100	Yes	H	4	Retinitis, left eye	None	No lost time	Right eye: congenital amblyopia
3	18, ♀	Saleswoman	20/65	20/100	Yes	M-A	10+	Conical cornea	None	....	Finished two years high school, six months saleswoman
4	19, ♀	Box factory	20/100	20/40	Yes	H, H-A	19	Congenital amblyopia	None	....	Completed seventh grade; strabismus
5	31, ♂	Clerk, wholesale	20/65	F	Yes	M	31	Congenital cataract	None	First and only job, 2 years	Completed high school; reads 7 point at 8 inches
6	45, ♀	Shoe factory	20/40	20/100	Yes	H	40	Amblyopia	None	Fifteen years shoe mkg.	Advanced to floor lady
7	28, ♀	Kodak	20/50	20/30	No	H-A	20	Lent. astigmatism	None	No lost time	Glasses improve, but does not wear them
8	44, ♀	Tailor	20/40	20/40	Yes	H, H-A	40	Amblyopia	None	Six years as tailor	Since marriage, has done all her own sewing
9	74, ♂	Paper mill	20/40—	B	Yes	H, H A	2	Glaucoma	None	Full pay	Reads 7 point; no trouble with work
10	59, ♂	Factory	5/200	20 50	Yes	H, H-A	50	Amblyopia	None	Maximum pay	Twelve years foreman in power house; at times a painter
11	48, ♀	Kodak	20/50	20/50	Yes	M-A	20+	Conical cornea	None	Full pay	Works on leather
12	69, ♀	Proofreader	20/40	20/65	Yes	H-A	5+	Choroiditis	None	Full pay	Has worked continuously, last five years
13	75, ♂	Judge	20/65	20/50	No	E	3+	Vitreous opacities	Retired	Age limit	Now acts as referee; reads 3 to 4 hours at a time; says he thinks he is 20 per cent. defective
14	47, ♂	Electrician	20/100	2/200	Yes	Cat glass	7	Cataract elec oph	Nearly total	Incapacitated as electrician	Could not work as a lineman; has done janitor work three years
15	62, ♂	Sawmill	B	20/65	Yes	M	6+	Glaucoma	Some	Full pay when at work	Operates a mill saw; field contracted to 35 degrees concentrically
16	60, ♂	Laborer	B	20/65	No	. ..	1	Corneal scars	None	. ..	Worked all year in stone quarry since recovery from accident
17	69, ♂	Laborer	B	20/40	No	M	2	Glaucoma	None	......	Worked in salt mine 1 year since loss of eye; 1 year as janitor
18	31, ♂	Molder	20/50	20 40	Yes	H, H A	15+	Amblyopia	None	Maximum pay	No difficulty with his work as a molder
19	30, ♂	Factory	20/65	20/100	No	E	30	Amblyopia	None	Equal pay with others	Making insulators for several years; no difficulty
20	42, ♂	Machinist	20/50	20/80	Yes	M	7	Corneal scar, vitreous opac	None	Full pay	Has received compensation for partial loss
21	51, ♂	Machinist	20/150	20/65	Yes	M, M-A	6+	Corneal opacity	None	Worked continuously	A blacksmith; high myopia
22	41, ♂	Molder	20/40	B	Yes	H-A	5	Corneal scars	None	Worked most of time	Vision at first was 20/100
23	39, ♂	Machinist	20/50	5/200	Yes	H, H-A	12	Amblyopia	None	Works steadily	Had an attack of iritis following accident to right eye
24	10, ♀	School	20/250	20/250	No	+0 25 S +0 50 Cy	4	Retinitis	.. ..	School	Completed the three lower grades in school
25	58, ♂	Policeman	L	10/200	No	..	8	Cataract	None	. ...	Has worked past 2 years with vision less than 20/200
26	70, ♂	Elevator	10/200	B	No	—1 50 Cy	7	Glaucoma	None	Worked continuously until 1923	Vision: 1917, 20/50; 1918-1920, 20/200; 1921-1923, 10/200, 5/200
27	54, ♂	Policeman	12/200	L	No	.. . ...	2	Cataract	None	No lost time	For two years vision in better eye was 20/200 and less
28	25, ♀	Stenographer	5/200	20/50	Yes	M, M-A	10+	Conical cornea	None	Lost time occasionally	Recurrent central corneal ulcerations; highest pay at present
29	57, ♂	Stationary engineer	20/200	20/200	No	H, H-A	57	H & H-A	None	None	Twelve years at present job; has never worn glasses at work
30	73, ♂	Driver delivery	5/200	5/200	No	H	3+	Nuclear cataract	None	None	Drives a horse about city, delivering tobacco
31	38, ♂	Painter	10/200	10/200	No	E	6+	Retinitis centralis	One half	Considerable	Has not been able to secure a position, but has been working for himself at his trade
32	25, ♂	Kodak	20/65	20/200	No	M, H-A	5+	Amblyopia	None	None	Works as inspector of plates, dark room
33	65, ♂	Shoemaker	20/200	20/200	No	....	2+	Nuclear cataract	Yes	Not able to work	Near vision is much worse than distant; 20 point at 10 inches
34	39, ♂	Draftsman	20/40	20/65	Yes	H, H-A	39	Amblyopia	None	None	Has worked 10 years as a draftsman
35	15, ♂	School	10/200	20/40	Yes	H-A	15	Cataract	...	....	Has reached second year junior high school; plays in orchestra
36	27, ♂	Lacquer sprayer	20/100	20/50	Yes	H-A	..	. .. .	None	None	Work good
37	30, ♂	Lacquer sprayer	20/40	20/200	Yes	Mixed astig.	..	Choroiditis	None	None	Work good
38	63, ♂	Assembling, camera repair	20/70	20/70	Yes	M	..	Large central opacity	None	None	Work good, close but not fine
39	58, ♂	Dipping	20/40	20/40	Yes	H	..	Presbyopia	None	None	Work good
40	23, ♀	Factory worker	20/40	20/40	Yes	H-A	..	....	None	None	Work good
41	51, ♂	Tool maker	20/40	20/40	Yes	....	..	Presbyopia	None	None	Work is close; quality is excellent
42	21, ♀	Clerical work	20/50	20/50	Yes	H-A	..	....	None	None	Work good
43	43, ♂	Clerical work	20/40	20/40	Yes	H-A	..	....	None	None	Quality of work is excellent
44	17, ♀	Mail delivery	20/70	20/70	Yes	M-A	..	. ...	None	None	Work satisfactory
45	21, ♂	Shipping department	20/70	20/70	Yes	M-A	..	Interstitial keratitis	None	None	Lays out orders and clerical work, good
46	56, ♂	Roll coating department	20/70	20/40	Yes	Mixed astig.	..	. ...	None	None	Dope coating, not fine; work excellent
47	63, ♂	Finishing department	20/50	20/40	Yes	H	..	. ...	None	None	Mixes chemicals; work excellent

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* In this column, ♂ indicates male; ♀, female.

One Hundred Cases of Visual Acuity Impairment, Ranging from 20/40 to 3/200 Snellen in the Better Eye—Continued

Case	Present Age, Sex*	Occupation	Vision with Correction		Glasses	Refraction	No. of Years Defective	Cause for Defect	Loss to Earning Ability	Lost Time, Pay	Comment
			O D	O S							
48	19, ♀	Billing department	20/40	20/40	Yes	H-A	..	....	None	None	Typing, fine work; excellent work
49	48, ♂	Kodak	Bl	10/200	...	.. .	..	.. ..	Total	Total	Retired because of low vision
50	36, ♂	Factory worker	20/70	20/100	Yes	A	..	....	None	None	Film beater; work not fine; excellent
51	44, ♂	Foreman	20/70	20/100	Yes	F	..	Bilateral amblyopia	None	None	Work good
52	41, ♂	Head painter	20/70	20/40	Yes	M-A	..	.... ..	None	None	Work good
53	56, ♂	Paint cleaner	20/50	20/40	Yes	H-A	..	....	None	None	Work good
54	16, ♂	Trucking	20/50	20/40	Yes	H-A		. .. ..	None	None	Work good
55	45, ♀	Bookkeeping; stenography	20/40	20/40	No	M	45	Congenital cataract	None	None	Stenographer 20 years; no difficulty in holding position
56	40, ♂	Shoemaker	20/100	20/50	Yes	M, H-A	8+	Neuroretinitis	None	None	Operates a machine
57	20, ♂	Student	20/50	20/40	Yes	H, H-A	20	Amblyopia	.	....	No trouble with study; working at mechanics
58	50, ♂	Merchant	20/40	20/50	Yes	H, H-A	20	Keratitis	None	None	Trophy winner at tennis and "horse shoes"
59	19, ♂	Farmer	20/40	20/65	Yes	Cat Gl	19	Congenital cataract	None	None	General farm work without difficulty
60	70, ♂	Teamster	20/60	20/50	Yes	Cat Gl	70	Congenital cataract	None	None	Has driven a team for 30 years
61	48, ♂	Farmer; laborer	20/40	20/100	Yes	Cat Gl	48	Congenital cataract	None	None	Never worked at skilled trade
62	40, ♀	House	20/40—	20/40	Yes	M, M-A	20+	Amblyopia	None	None	No trouble with usual duties pertaining to house work
63	32, ♂	Mechanic	20/70	20/40	Yes	M-A	20	Corneal scars	None	None	Has always done close work since leaving school
64	30, ♀	Housewife	10/200	20/40	No	Irreg astig.	25	Corneal scars	None	None	Usual duties of housekeeper
65	58, ♀	Housewife	20/100	20/50	Yes	H-A	50	Amblyopia	None	None	Never any trouble with reading or sewing
66	58, ♂	Grocer	20/40	20/70	Yes	M, M-A	20+	Retinitis	None	None	Proprietor of grocery store 20 years; has kept own books, etc.
67	24, ♂	Farmer	20/200	20/200	No	...	24	Congenital cataract	None	None	Has worked on the farm for 20 years; no difficulty with any kind of work; lower grades at school
68	30, ♀	Housewife	3/200	Field	No		10	Optic atrophy	.	....	Does all her own housework
69	23, ♂	Office	20/100	20/100	Yes	H, H-A	23	Nystagmus	None	None	Ten years' clerical work in office, book keeping, typing, etc.; cannot run an auto.; three jobs in 10 years
70	60, ♂	Machinist	20/100	20/100	Yes	—0 75 S	4	Tobacco amblyopia	None	None	Has worked continually at various operations in machine shop
71	13, ♀	School	20/65	20/50	Yes	H, H-A	8	Corneal scars	....	. ...	Fifth grade; no trouble with school work, but reported slow and dull
72	54, ♀	Housewife	20/40	20/65	Yes	H, H-A	15+	Iritis	......	....	Fine sewing and very fond of crocheting
73	13, ♀	School	20/50	20/65	Yes	H, H-A	..	Amblyopia	......	....	Has never failed to pass any grade in school
74	20, ♂	School	20/50	20/50	Yes	M	15+	Retinitis pigmentosa	......	....	Fields cut to 25 ecc; has reached second year normal school
75	16, ♀	Laundry machine	20/100	20/65	No	. ...	..	Interstitial keratitis	.... .	....	Works in steam laundry; no difficulty with machines
76	59, ♂	Mechanic; elevator	20/200	20/200	No	H	5	Cat. Ret. Cent.	Yes	Considerable loss in pay	Mechanic for years; has operated elevator last 5 years
77	34, ♀	Housewife	20/100	5/200	Yes	H	6	Retinitis gravidarum	None	....	Does all housework and sewing; trouble threading needle
78	72, ♂	Lawyer	20/40	20/50	Yes	H	8	Vit. Opac., right eye; amblyopia, left eye	None	....	Prodigious reader; large, active legal practice
79	70, ♀	Physician	20/40	20/40	Yes	H, H-A	60+	Amblyopia	None	....	General medical practice; some minor surgery
80	29, ♂	Road builder	20/50	20/70	No	. ....	3+	Optic atrophy	None	None	No trouble with work; does grading satisfactorily
81	36, ♀	Stenographer; off. work	20/40	Fin	Yes	Low M-A	10+	Choroiditis	None	Maximum pay	All kinds office work 15 years; trouble reading some script
82	20, ♀	Student	20/100	20/100	Yes	M-A	16+	Nystagmus	.. ...	....	Second year in college; no difficulty with work
83	19, ♂	Tool maker	20/65	20/50	Yes	M-A	19	Congenital cataract	None	Maximum wages	"Snow blind"; regarded as first class toolmaker
84	64, ♂	Baker	20/200	20/200	No	E	2+	Retinitis, diabetic	None	Maximum wages	Has not lost a day at his trade; trouble doing fancy pastry, white on white
85	35, ♂	Laborer	20/100	20/100	No	E	35	Amblyopia	None	Low wage scale always	Factory laborer; never tried to operate machine; not skilled
86	27, ♂	Undertaker	20/100	20/100	Yes	M	15+	Amblyopia	None	Successful business	No trouble with any detail of his work
87	67, ♂	Grocer	20/50	20/65	Yes	H, H-A	50+	Amblyopia	None	Successful business	Keeps his books and does general grocery business
88	62, ♂	Librarian	20/320	20/320	Yes	H	8+	Tobacco amblyopia	None	35 years librarian	Continued to work and read books until v. = 20/320 both eyes; but used magnifying glass
89	80, ♂	Watchmaker	10/200	20/40	Yes	H, H-A	10+	Cataract	Some	Some loss of time	Continued to repair watches until v fell below 20/60
90	50, ♂	Commercial traveler	20/200	20/40	Yes	H	50	Congenital amblyopia	None	Successful salesman	Never any trouble in figuring or making reports
91	24, ♂	Canning factory	20/100	20/200	Yes	H	20	Specific congenital retinitis	....	Never had good job	Finished 1 year at high school; fills boxes in canning factory; janitor in winter
92	41, ♂	Metal finisher	20/65	20/200	No	E	3	Diabetic retinitis	Some	Lost time, no loss in pay	Says he can do work all right; vision blurred
93	30, ♀	Clerk	20/200	20/200	Yes	M-As	20	Con cornea	None	Not highest pay	Been clerk 8 years; reads book print; eyes tire
94	25, ♀	Tailoring	20/40	20/40	Yes	H, H-A	20+	High degree H	None	Highest pay	Considered first class tailoress
95	70, ♀	Librarian	20/70	20/65	Yes	H, H-A	15	Glaucoma	None	Full pay	20° conc. contract in better eye; considerable reading and all library work
96	31 ♂	Tailor	20/40	20/40	Yes	H	31	Amblyopia	None	Full pay	No trouble at all with work
97	47 ♂	Painter	20/65	20/40—	Yes	H, H-A	47	Amblyopia	None	No lost time	Work satisfactory; not conscious of any defect or handicap
98	37, ♂	Tailor	20/40	20/40	Yes	H, H-A	37	Post-pol cat.	None	None	Tailor, various departments, 25 years
99	39 ♂	Carpenter	20/65	L P	Yes	H-A	7	Corneal scars	Some	Considerable; not empl. as car.	In dynamite explosion; lost one eye; farming last 5 years; work on farm
100	42, ♂	Carpenter	20/65	20/200	No	H	12	Right eye, cor. scars; left eye, amblyopia	None	Not lost day in 4 years	Right eye hit by flying nail; has done cabinet work

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* In this column, ♂ indicates male; ♀, female

that would reduce it to 20/60, acuity would be reduced to the extent that is a distinct impairment to efficiency for many occupations. Obviously, the latter injury cannot be regarded as solely responsible for the incapacity, but the final incapacity must de due to the accumulated effect of all.

FINDINGS

An analysis of these 100 cases will reveal the following pertinent and interesting facts regarding age, sex, number of years defective, refraction, occupation, general nature of cause for visual defect, and the degree of visual acuity. All these facts have some bearing on the further study of these persons in connection with their earning ability.

Age.—These persons range from 10 to 75 years of age. Fifteen were under 21, and ten were over 65. Seventy-five per cent. were therefore in their years of greatest vigor and earning ability.

Sex.—Thirty are women and seventy are men.

Years Defective.—All the persons included in the tabulated list had defective vision for at least one year, and most had had their defect much longer, many having had the visual defect ten, twenty or more years. In each case, sufficient time had elapsed to permit that person to become at least partially accustomed to the altered visual acuity and thereby to learn how to make most use of his eyes despite the defect.

Refraction.—Visual acuity recorded in every case represents the best vision obtainable with correcting glasses. There are twenty-four cases of moderate myopia (less than —2. S.), (one, Case 21, had —6. S.), seven were emmetropic and fifty-nine hypermetropic.

Occupation.—There are seven students; five professional men, including two librarians, one physician, one lawyer and one judge; eighteen with nonprofessional occupations, including six wives working at home; six clerks or sales people, two merchants, two policemen, and two farmers; sixty-five are classed as skilled workers, this list including two stenographers, one proofreader, two mail clerks, and three deliverymen or truck drivers. The other skilled workers were employed as draftsmen, tailors, painters, electricians, elevator operators, mechanics, tool makers, machine operators, mill workers, carpenters, engineers, molders, bakers and road builders. The tabulated cases include only five nonskilled laborers, so that all except five required the use of good eyesight for their work or employment.

Visual Defects.—In every case of moderate myopia or myopic astigmatism included in this tabulation, there was found always some cause other than the myopia for the defective vision. Twenty-four cases of this class are included. The cases were selected in order to include as great a variety of visual defects as possible. In general the visual defects may be divided into two classes: the congenital defects and the acquired defects. Of the former there are forty-two cases, thirty-two being amblyopias and ten congenital cataracts. Of the latter, the acquired defects, there are fifty-eight cases. These include corneal opacites, conical corneas, glaucoma, choroiditis, retinitis, vitreous opacities, senile and traumatic cataract, tobacco amblyopia, optic atrophy, iritic exudates, and irregular astigmatism.

Working Ability and Earning Capacity.—A perusal of these tabulated cases will reveal that no patient had any loss either to his working or to his earning ability until visual acuity fell at least to 20/65 Sn. in the better eye. A visual acuity of 20/40 Sn. or 20/50 Sn. or 20/60 Sn. had in no case proved a sufficient impediment either noticeably to lessen efficiency or to lessen earnings. However, in my experience, when vision is reduced to these degrees by some recent lesion, there is experienced at first some degree of difficulty and a loss of efficiency, which is always overcome within a few months. This is true also when vision is reduced to much lower ranges.

Visual Acuity

39 had maximum acuity of 20/40 in the better eye
21 had maximum acuity of 20/50 in the better eye
12 had maximum acuity of 20/65 in the better eye
5 had maximum acuity of 20/70 in the better eye
8 had maximum acuity of 20/100 in the better eye
6 had maximum acuity of 20/200 in the better eye
1 had maximum acuity of 20/250 in the better eye
1 had maximum acuity of 20/320 in the better eye
5 had maximum acuity of 10/200 in the better eye
1 had maximum acuity of 5/200 in the better eye
1 had maximum acuity of 3/200 in the better eye

A reduction of acuity to 20/60 Sn. is the beginning of the threshold of permanent partial loss to efficiency. This is shown in Case 89, that of a watch maker who continued at his work until the acuity in the better eye fell below 20/60 Sn. Patient 99, a carpenter, with vision of 20/65 Sn. in one eye and light perception in the other, could not work at his trade. Yet Patient 100, with not better vision than 20/65 Sn., said that he had not lost a day in four years and was working at his trade. There were fifteen additional persons with vision of 20/65 or 20/70 Sn., none of whom experienced any permanent difficulty with their work or any loss in earnings, and some were employed at fine near work.

Of the eight persons who had an acuity of 20/100 Sn. in the better eye, I found that five had experienced no loss in earnings. Two of these five did work that was not fine and three did fine work, one being employed as a clerk and bookkeeper, one as a machinist, and one being a college student, all working without conscious difficulty. Of the two in this class, Patients 14 and 91, who were incapacitated, one was a lineman who, following a severe electric shock, developed retinitis and cataracts. After removal of the cataracts, in the better eye there was obtained finally a vision of 20/100 Sn. The other person (Patient 91) had considerable trouble with school work, but finished one year of high school. He never could get a "good" or satisfactory job, and his wages were always low. In the first case there were complications, and the second person was of low intelligence.

Of the fifteen persons having not better than 20/200 Sn. in the better eye, three (26, 33 and 49) were totally incapacitated, two (31 and 76) were partially incapacitated, and ten continued at their particular occupations despite the handicap of poor vision. Of those totally incapacitated, Patient 26, an elevator operator, continued at his job until his acuity fell to 10/200 Sn. Patient 33, a shoemaker, gave up his employment, operating a machine, when vision fell to 20/200 Sn. in both eyes. Patient 49, a camera factory worker, resigned when his acuity fell to 10/200 Sn. Of those partially incapacitated, Patient 31, a painter, worked at his trade with an acuity of 10/200 Sn. in each eye by securing work directly, but he could not get work through an employer or contractor; and Patient 76, after working a number of years as a skilled mechanic, found it necessary to give up this kind of employment when vision fell to 20/200 Sn. in each eye, but was able to operate a factory elevator for five years with this degree of visual acuity.

Of the ten remaining persons who continued at their work with acuity in the better eye of 20/200 Sn. or less, one was a school child (Patient 24), aged 10, with an acuity of 20/250 Sn. in each eye who had finished three lower grades in school. Two (Patients 25 and 27) were policemen, both continuing at their work until visual acuity fell to 10/200 Sn. One (Patient 29) worked for twelve years without loss of any time or pay as a stationary engineer, with an acuity of 20/200 Sn. in each eye. A farmer, a baker and a clerk (Patients 67, 84 and 93), each with vision of 20/200 Sn. in the better eye, continued at their work without serious difficulty. One (Patient 68), a wife and housekeeper, did all her own housework, with an acuity of only 3/200 Sn. in the better eye and only field vision in the other. There remain two remarkable cases, 88 and 30. Both happen to be cases of tobacco amblyopia with complications. The former patient was a librarian who continued at his post, which required the reading of many books, consulting card indexes and the constant daily use of his eyes, until his acuity fell to 20/320 in each eye. He used a very near glass—a 6 inch focus—and in addition a hand magnifying lens. The second was a driver and deliveryman who continued to drive his horse all about the city and deliver orders of goods, with a central visual acuity of only 5/200 Sn. in each eye. He had done this with no better vision for more than three years while under my observation. His vision had been poor for several years prior, as he had nuclear cataracts in addition to his tobacco amblyopia. Of course, both man and horse were familiar with the job.

COMMENT

Familiarity with the kind of work to be performed is a valuable asset to those having defective sight. When one has become accustomed to some particular operation on a machine or other process of labor, he may continue at the same employment successfully and efficiently, whereas the same person would not be able to take up new employment, even when the nature of the work might require a less degree of visual acuity. Although some men may continue at their old employment with a 20/200 Sn. or less, such would always have considerable difficulty in securing new jobs, and do have difficulty with new and unfamiliar kinds of work.

There is still another aspect of our theme. Many employers will retain an old and faithful employee, without reduction in wages, even when it is known that such an employee has defective vision and difficulty with his work. However, in the study of these tabulated cases I have focused our attention on the kind of work actually accomplished by the worker and his ability to accomplish his particular task, and have not regarded full pay as always meaning full visual efficiency.

The length of time that the defect in sight has existed and the rapidity of its onset are factors of importance in considering visual working ability. It seems clear that those who have congenital defects, causing a lowered degree of visual acuity, overcome their handicap and learn to work more efficiently than do those who suffer visual losses later in life after having had good or normal vision, so that the older one is when vision becomes defective by accident or by disease, the more difficult it is to make efficient use of the remaining vision. Nevertheless, I have found that many (mostly those under 50), even with acquired visual impairment, and even when the impairment was serious, from 20/200 to 20/320 Sn., can in the majority of instances be employed in some productive capacity with earning power. Time, encouragement and some degree of pertinacity are required to rehabilitate these. Eighty per cent. of the patients had substantial visual earning power with an acuity not better than 20/200 Sn. and not less than 20/400 Sn. A 10/200 Sn. was the point of total incapacity for all except two, who should be regarded as exceptional and extraordinary.

I wish to call attention to those persons having an acuity not better than 20/40 Sn., as this point in the Snellen scale is often regarded as marking the crisis in vision. By some, this notation is regarded as expressing one-half vision or half blindness, simply because the visual angle by which the 20/40 Sn. is measured is twice the size of the Snellen unit. In the tabulation there are sixty persons having a 20/40 or a 20/50 Sn., and not a single one of these experienced any loss whatever either in ability to use the eyes or in earning capacity. From the point of view of efficiency or usefulness, a 20/40 Sn. does not express one-half vision, no matter how fine the work may be at which such an acuity may be employed. The Snellen standard unit, one minute visual angle, represents an average normal; therefore it is correctly inferred not only that many persons have a normal visual acuity better than this, but also that many have less acuity as their normal.

Statistics of visual acuity defects compiled by the Surgeon General's Office[4] show that 22.58 per thousand of all men called by the draft during the late war had less than a 20/40 Sn. in the better eye, since this number was rejected solely because of defective acuity, the minimum visual requirements for acceptance in the unlimited service being a 20/40 Sn. in each eye with correction, and less than this being a cause for rejection. My own statistics, obtained by a complete survey of one factory, the data being obtained by Dr. Kennedy, are in substantial agreement with the foregoing; i. e., between 2 and 3 per cent. of our population have not better visual acuity than a 20/40 Sn., which is normal for these persons. In no sense are these half blind or only 50 per cent. efficient. A 20/40 Sn. is a handicap for new men seeking employment in various lines of public service, as many railroads and electric service roads have made rules that fix a standard visual acuity for new employees. This rule does not apply to old employees already in service. Most railroads do not consider a 20/40 Sn. as a cause for demotion even for first class locomotive engineers.

SUMMARY

1. No loss to earning ability even for the highly skilled work was found until visual acuity was reduced to 20/60 Sn. The threshold for the beginning of visual disability as reflected in earning ability lies between 20/60 and 20/100 Sn.

2. The accumulated effect of repeated trivial injuries must not be ignored from an economic point of view for those cases in which a single injury does not reduce

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[4] "Defects Found in Drafted Men," Surgeon General's Office, Government Printing Office, 1920

acuity to 20/40 or less, as repeated injuries of the same degree may finally cause loss to earning capacity.

3. A 20/200 Sn. caused a total incapacity to 13.3 per cent. and a partial incapacity to an additional 13.3 per cent, so that 26.6 per cent. in this class with vision of not better than 20/200 Sn. were either completely or partially incapacitated for earning. Eighty per cent. had earning capacity with acuity between 20/200 and 20/400 Sn.

4. A 10/200 Sn. was the point of visual acuity reduction which became the point of total incapacity in all except two cases, and this may be regarded as the lowest limit of visual earning capacity.

5. The threshold of total incapacity lies between 20/200 and 2/200 Sn., depending on the nature of the employment, age of the defective person, the duration of the subnormal vision, and on his individuality (his will to work).

6. An acuity of not better than 20/40 Sn. in the better eye does not cause a loss of 50 per cent. either in efficiency or in earning ability. This degree of acuity, in fact, causes no direct loss to earning capacity. However, its direct influence from two economic points of view must be considered: (1) that of the accumulated effect of these degrees of loss due to repeated injury, and (2) the effect of such degree of substandard vision on the competitive ability.

53 South Fitzhugh Street.

ABSTRACT OF DISCUSSION

Dr. John A. Donovan, Butte, Mont.: Compensation has become a very serious subject. Juries are giving terrific verdicts, and beware—each one of us is constantly liable to become the prey of these vultures who are forever looking up and advising lawsuits—the grasping corporations, the labor unions whose sole teachings are less work, more pay—never once do they advise as we do, efficiency, but always what? Read the reports coming from their conventions. Lastly, the public, never considered, never even interested, yet it pays all the bills. It is the public that we here should represent. In every village is the man of note, reading the law at a distance of 3 inches with his myopic eye, and with his hypertropic eye supervising the neighbors. The man with 20/60 vision who has told that he needs no glasses, that he can tell a horse from a cow a mile away, is telling the truth. We could leave this room and within twenty minutes find twenty men in whom, if they slowly lost vision down to 20/40, even if they themselves knew it, it would never make the difference of one single penny in their earning ability throughout the remainder of their lives. Who has not seen the derelict, totally unable to work, move off to greener fields the day following receiving a large compensation? Of course I am not talking of the really honest man for whom no law is necessary. The factors of quality of work, earning, competitive and saving ability, contributory negligence, all ultimately should be entered as factors in our table. Consider the high myope, ignorant of any visual defects, the astigmatic patient and even the hyperope, who by squinting sees sufficiently. Then we supply one of these with glasses after careful examination under a cycloplegic, and the patient suddenly enters a new world, but never again, as he tells his innumerable friends, can he see without glasses as he could before the drops were used. He does not, and does not want to, understand. One may record 20/25, and another man with the same patient will record 20/20, and a third man equally careful may record 20/30—all in the same patient, and all are absolutely right. Men come to me because the examiner in another division rejected them for train service. I request their reappointment, and vice versa. Who was right and at which time? We who have to deal daily with claim agents and claim attorneys of our employers and yet must give satisfaction and advise conscientiously our patients, anticipate the difficulty of making any iron bound standards, yet know it must be done. Many a man has a blind eye for months before he finds it out.

Dr. E. E. Holt, Portland, Maine: Dr. Snell refers to me as an authority on the amount of vision that may be lost without affecting the earning ability. This standard was largely based on the work of Magnus on Visual Economics as translated by Wurdemann, a work of great value on the subject of which it treats. In working out the efficiency of the various degrees of subnormal visual acuity, we should realize that we must be guided not by the extremes, but by the law of averages, the same as that on which the life table is based. Dr. Snell speaks of the effect of the visual efficiency of various degrees of subnormal visual acuity on the earning ability. Of course the ultimate effect is on that, but the first effect is on the other indispensable factor of the earning ability, namely, the competing ability, thus obtaining the two factors of the earning ability which are necessary to solve the compensation problem by mathematics in a scientific manner. Visual efficiency has no earning ability unless it is put to work in some vocation and thereby acquires a competing ability; and the two together make the product, namely, the earning ability. At the Industrial School for the Blind at Portland, I was struck with the great efficiency and competing ability of one of the boys, who was totally blind, as he sat at a typewriter writing out dictations as fast as the ordinary person talks. He took out a sheet of the typewritten letter in which he had purposely left out a letter in a word, and he put it back into the typewriter and put in the proper letter in the word so quickly that it was astounding, so that person with extreme loss of vision may acquire great competing ability and thereby have a corresponding earning ability. But it is not so much on their poor vision, but on their competing ability to do the work in spite of the poor vision, or, as in the case of the boy in the Industrial School for the Blind, with no vision.

Dr. Edward Jackson, Denver: We have had many discussions about methods of measuring visual acuity and demonstrations that a certain visual acuity meant something with reference to disability. But Dr. Snell has taken a very important step in setting the example of studying the patient with diminishing visual acuity and finding out the facts in the individual case, as to whether that diminution of visual acuity caused diminution of efficiency in their work and their earning ability. It is something that every individual ophthalmologist will have to take up, before his testimony will help a great deal, as to the effect of an injury to the eye, on the financial production of the person who has been injured. To gain an understanding of what we are talking about, it will help to try with our own eyes what we can see and what we can do, with a certain visual impairment, artificially produced for the purpose. This question was brought up before the committee of the Colorado Ophthalmological Society, with regard to the case of a claimant for blind benefits. The standard had been established that the vision must be below 1/10, in order to entitle any person to blind benefit. This woman had very noticeable optic atrophy, pallor of the optic disks and shrinking of the vessels, that showed with the ophthalmoscope. But her neighbors said she could play cards, that indeed she had made a living at teaching card playing to seeing persons. The question of playing cards is simple to decide: Just try cutting down your own vision to 1/10 and then see whether you are able to play cards. I tried it on myself and on other people; and I find with 1/10 vision one can see the cards readily. If we study carefully along the lines that Dr. Snell has indicated, how much people with impaired vision can learn to do, it will give us a better mastery of these problems that are increasing in importance every day.

Dr. Albert C. Snell, Rochester, N. Y.: The measurement of acuity is not the measurement of the physiologic function of macular vision. As Dr. Jackson has mentioned that the expression "1/10 vision" is not an accurate statement. I think we should get into the habit of expressing our notations which have a precise meaning. If we mean 1/10 Snellen we should say that. The Snellen notation is one of comparative acuity, and not a fractional expression of vision If we say 1/10 Snellen we shall be using a scientific terminology and we shall not be open to the criticism of expressing visual acuity in fractional terms when we do not mean to express fractional vision.

CHEMICAL ANALYSIS OF SWEAT

A PRELIMINARY STUDY [*]

ROBERT E BARNEY, M.D
Instructor in Dermatology and Syphilology, University of Michigan Medical School
ANN ARBOR, MICH.

Previous investigations on the chemical analysis of sweat have been handicapped because of the inability to obtain sufficient quantity, and because, until recent times, chemical methods were inexact Hence, there are few studies in the literature bearing on this subject

In 1900, Hoelscher,[1] made a rather extensive analysis of human sweat, investigating chiefly the nitrogenous elements; as he nowhere mentions his chemical methods, however, the value of his observations is questionable. In 1911, Riggs [2] made a short study of six normal cases, using more exact chemical methods. Perhaps the most valuable contribution along this line was made by Plaggemeyer and Marshall.[3]. These authors investigated eighteen normal fluids for nitrogenous constituents, comparing the excretory power of the skin with the kidneys. Their results in part are expressed in terms of total nitrogen, whereas it seemed to us more desirable to determine the nonprotein nitrogen, so that a comparison could be made with the blood. The average urea nitrogen per hundred cubic centimeters in their series is slightly higher than in ours.

Before attempting to investigate the chemistry of sweat in disease, it is obvious that a normal must be established.

We were concerned chiefly with the nonprotein nitrogen and urea. Urea is the principal end-product of protein metabolism. The nonprotein nitrogen includes those nitrogenous substances remaining after the protein has been precipitated, embracing chiefly urea, amino-acids, ammonia and creatinin. In an examination of five specimens, we were unable to determine the presence of uric acid either qualitatively by the murexid test or by Benedict's direct quantitative method as applied to blood.

In addition, we determined the total solids, which embrace chiefly protein, the nitrogenous elements mentioned above, and salts.

PROCEDURE

Method of Collection.—The subjects chosen for sweating were patients entering the dermatologic clinic of the University Hospital. The normals presented no dermatoses and were healthy young adults on a well balanced diet The sweat was collected about two hours before lunch and was analyzed within an hour following collection After a short cleansing bath, the subject was placed in bed between two rubber sheets. Since in two instances urine contaminated the sweat, the patient was warned in this respect. Four hot water bottles were placed on each side below the lower rubber sheet, and the subject was covered generously with blankets. One-fifth grain (0 01 gm.) of pilocarpin was injected subcutaneously, and fluids were forced. The patient remained in the sweat bath for about an hour and a half. This time was sufficient to collect amounts as high as 690 c.c. of sweat. When the patient was removed from the bath, care was taken not to lose any of the sweat. At this time, blood was drawn for a nonprotein nitrogen determination and a urinalysis was made. In every instance, the urine examination was negative.

TABLE 1—*Normal Sweat*

No.	Blood Nonprotein Nitrogen per 100 C c, Mg	Time		Amount, C c	Total Solids per 100 C c., Gm	Nonprotein Nitrogen per 100 C c., Mg	Nonprotein Nitrogen in Total Solids, per Cent	Nonprotein Nitrogen per Hour, Mg	Urea Nitrogen per 100 C.c, Mg	Urea Nitrogen in Total Solids, per Cent	Urea Nitrogen per Hour, Mg	Urea Nitrogen in Nonprotein Nitrogen, per Cent.
		Hr.	Min									
1	49 1	1	45	30	2 200	200 0	9 00	34 1	63 0	2 86	10 8	31 50
2	41 6	1	40	170	1 200	98 0	8 16	99 9	58 0	4 83	59 1	59 18
3	39 5	1	45	75	1 480	96 7	6 55	41 4	30 6	2 06	13 1	31 63
4	37.6	1	20	100	1 460	88 8	6 08	66 6	34 2	2 34	25 6	38 51
5	35 3	1	10	100	0 600	80 0	13 30	69 0	40 0	6 60	34 1	50 00
6	34 2	1	15	130	0 970	74 7	7 70	93 6	30 6	3 18	31 8	40 96
7	28 5	1	30	280	0 600	70 0	11 66	131 0	42 0	7 00	78 4	60 00
8	34 4	1	30	150	0 900	82 0	9 10	82 0	35 0	3 70	28 2	42 68
9	30 7	1	30	220	0 680	60 0	8 82	88 0	35 0	5 15	51 4	58 33
10	31 5	1	30	80	0 670	56 0	8 35	29 8	37 0	5 59	20 0	66 97
11	33.5	1	10	170	0 860	50 0	5 80	73 0	21 0	2 40	30 6	42 00
12	30 1	1	10	275	0 644	48 0	7 45	11 3	21 8	3 30	52 0	44 37
13	37 5	1	30	250	0 380	38 0	6 55	63 4	20 0	3 44	34 0	52 63
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As obtained for analysis, the sweat was a slightly turbid fluid, as a result of the admixture of dirt and epithelial débris. In order to remove this, the sweat was filtered. This filtrate was analyzed for total solids, urea nitrogen and nonprotein nitrogen, according to the following procedure:

Methods of Analysis.—The methods devised by Folin and Wu for the analysis of blood were used with slight modification. In the precipitation of the blood protein, according to the original method, the blood is diluted with 7 volumes of water and 1 volume each of sodium tungstate and sulphuric acid added. Since sweat is already a very dilute fluid, further dilution was inadvisable Hence, the precipitation was made by adding 1 volume of sodium tungstate to 2 volumes of sweat and then adding drop by drop 1 volume of a 0 66 normal sulphuric acid. This mixture was shaken for fifteen minutes, and filtered until a clear filtrate was obtained. The filtrate gave a negative biuret test for protein

One cubic centimeter portions of this tungstic acid filtrate were used for the determination of nonprotein acuity to 20/40 or less, as repeated injuries of the same degree may finally cause loss to earning capacity.

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10	31 5	1	30	80	0 670	56 0	8 35	29 8	37 0	5 59	20 0	66 97
11	33 5	1	10	170	0 860	50 0	5 80	73 0	21 0	2 40	30 6	42 00
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In addition, we determined the total solids, which embrace chiefly protein, the nitrogenous elements mentioned above, and salts.

PROCEDURE

Method of Collection.—The subjects chosen for sweating were patients entering the dermatologic clinic of the University Hospital. The normals presented no dermatoses and were healthy young adults on a well balanced diet The sweat was collected about two hours before lunch and was analyzed within an hour following collection. After a short cleansing bath, the subject was placed in bed between two rubber sheets Since in two instances urine contaminated the sweat, the patient was warned in this respect. Four hot water bottles were placed on each side below the lower rubber sheet, and the subject was covered generously with blankets. One-fifth grain (0 01 gm.) of pilocarpin was injected subcutaneously, and fluids were forced. The patient remained in the sweat bath for about an hour and a half. This time was sufficient to collect amounts as high as 690 c.c. of sweat. When the patient was removed from the bath, care was taken not to lose any of the sweat. At this time, blood was drawn for a nonprotein nitrogen determination and a urinalysis was made. In every instance, the urine examination was negative.

As obtained for analysis, the sweat was a slightly turbid fluid, as a result of the admixture of dirt and epithelial débris. In order to remove this, the sweat was filtered. This filtrate was analyzed for total solids, urea nitrogen and nonprotein nitrogen, according to the following procedure:

Methods of Analysis.—The methods devised by Folin and Wu for the analysis of blood were used with slight modification. In the precipitation of the blood protein, according to the original method, the blood is diluted with 7 volumes of water and 1 volume each of sodium tungstate and sulphuric acid added. Since sweat is already a very dilute fluid, further dilution was inadvisable. Hence, the precipitation was made by adding 1 volume of sodium tungstate to 2 volumes of sweat and then adding drop by drop 1 volume of a 0.66 normal sulphuric acid. This mixture was shaken for fifteen minutes, and filtered until a clear filtrate was obtained. The filtrate gave a negative biuret test for protein

One cubic centimeter portions of this tungstic acid filtrate were used for the determination of nonprotein nitrogen and urea nitrogen according to the usual Folin-Wu technic.

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The total solids were obtained by evaporating to dryness 5 c.c. of filtered sweat in a weighed crucible at 90 C.

RESULTS OF INVESTIGATIONS

The results of our investigations are expressed in the accompanying tables.

Table 1 gives a detailed account of the fourteen normal specimens examined and, in addition, the nonprotein nitrogen per hundred cubic centimeters of blood.

The percentages of nonprotein nitrogen and urea nitrogen in the total solids are so variable as to be of little comparative value.

In order to determine whether the injection of pilocarpin altered the composition of sweat, five fluids were examined without injecting the drug. Table 2 gives our results in these cases. Although the amounts of nonprotein nitrogen and urea nitrogen per hundred cubic centimeters of sweat are lower than the normals in which pilocarpin was used, the amounts excreted hourly are practically the same.

Table 2.—*Normal Sweat; No Pilocarpin*

No.	Blood Nonprotein Nitrogen per 100 C.c., Mg.	Time		Amount, C.c.	Total Solids per 100 C.c., Gm.	Nonprotein Nitrogen per 100 C.c., Mg.	Nonprotein Nitrogen in Total Solids, per Cent.	Nonprotein Nitrogen per Hour, Mg.	Urea Nitrogen per 100 C.c., Mg.	Urea Nitrogen in Total Solids, per Cent.	Urea Nitrogen per Hour, Mg.	Urea Nitrogen in Nonprotein Nitrogen, per Cent.
		Hr.	Min.									
1	30.7	1	30	570	0.040	32.0	7.94	121.9	20.0	4.93	76.0	62.34
2	30.0	..	50	100	0.866	57.1	6.59	68.5	33.3	4.61	39.9	58.36
3	28.5	1	45	825	0.622	39.2	6.30	72.8	25.4	2.41	47.2	64.83
4	36.3	1	15	100	0.834	55.9	6.70	44.7	33.3	3.99	26.6	59.56
5	32.0	1	15	130	0.690	66.6	9.66	69.3	41.0	5.95	42.7	61.64

Table 3.—*Senile Eczema*

No.	Blood Nonprotein Nitrogen per 100 C.c., Mg.	Time		Amount, C.c.	Total Solids per 100 C.c., Gm.	Nonprotein Nitrogen per 100 C.c., Mg.	Nonprotein Nitrogen in Total Solids, per Cent.	Nonprotein Nitrogen per Hour, Mg.	Urea Nitrogen per 100 C.c., Mg.	Urea Nitrogen in Total Solids, per Cent.	Urea Nitrogen per Hour, Mg.	Urea Nitrogen in Nonprotein Nitrogen, per Cent.
		Hr.	Min.									
1	37.5	2		90	1.28	81.0	6.71	38.7	50.0	3.90	22.5	58.13
2	29.6	1	45	30	0.90	62.4	6.93	10.6	32.0	3.55	6.0	51.28
3	35.2	1	15	80	1.44	54.0	3.73	34.4	21.2	1.67	15.4	44.81
4	37.2	1	30	135	0.76	47.0	6.18	42.3	25.6	3.36	23.0	54.46
5	28.6	1	30	400	0.80	31.2	4.29	99.4	24.0	2.76	64.0	64.41
6	29.7	1	25	690	0.65	33.0	5.01	16.0	13.0	1.97	6.9	39.39

Table 4.—*Psoriasis*

No.	Blood Nonprotein Nitrogen per 100 C.c., Mg.	Time		Amount, C.c.	Total Solids per 100 C.c., Gm.	Nonprotein Nitrogen per 100 C.c., Mg.	Nonprotein Nitrogen in Total Solids, per Cent.	Nonprotein Nitrogen per Hour, Mg.	Urea Nitrogen per 100 C.c., Mg.	Urea Nitrogen in Total Solids, per Cent.	Urea Nitrogen per Hour, Mg.	Urea Nitrogen in Nonprotein Nitrogen, per Cent.
		Hr.	Min.									
1	31.7	1	40	300	0.530	30.0	5.66	54.0	20.9	3.95	37.7	69.60
2	24.4	1	50	200	0.646	46.5	7.10	65.9	28.5	4.42	40.5	61.42
3	30.1	1	20	140	0.760	51.7	6.80	54.3	31.5	4.15	33.1	61.04
4	23.1	1	40	300	1.492	39.7	2.66	71.5	24.0	1.60	42.0	60.41
5	27.2	1	20	170	0.590	46.8	7.94	59.7	26.7	4.53	45.5	57.13
6	36.3	1	30	370	0.370	40.5	10.90	95.5	22.2	6.00	54.2	54.81

Table 5.—*Miscellaneous*

No.	Blood Nonprotein Nitrogen per 100 C.c., Mg.	Time		Amount, C.c.	Total Solids per 100 C.c., Gm.	Nonprotein Nitrogen per 100 C.c., Mg.	Nonprotein Nitrogen in Total Solids, per Cent.	Nonprotein Nitrogen per Hour, Mg.	Urea Nitrogen per 100 C.c., Mg.	Urea Nitrogen in Total Solids, per Cent.	Urea Nitrogen per Hour, Mg.	Urea Nitrogen in Nonprotein Nitrogen, per Cent.
		Hr.	Min.									
1	39.2	1	30	135	0.88	48	5.40	43.2	26	2.90	23.4	54.06
2	44.1	1	30	190	0.66	26	3.93	32.8	18	2.72	22.8	69.22
3	35.8	1	30	170	0.64	34	5.35	38.8	17	2.79	20.2	52.07

It will be seen that the composition of sweat as regards the amounts of nonprotein nitrogen and urea nitrogen per hundred cubic centimeters varies within rather wide limits. The nonprotein nitrogen ranges from 28 mg. to 200 mg. and the urea nitrogen from 14 mg. to 63 mg. per hundred cubic centimeters. It is also evident that the amount of sweat excreted bears no definite relationship to the amounts of these substances. For this reason, we were of the opinion that the best index of the excretory power of the skin could be obtained by a comparison of the amounts of nonprotein nitrogen and urea nitrogen excreted hourly.

We were particularly interested in the possible relation of the faulty excretion of sweat to the general breakdown, especially of the cardiorenal system that occurs in so-called senile eczema. In this particular condition, it might readily be assumed, as a result of the general arteriosclerosis with its associated chronic nephritis, that a failure of excretion of the nitrogenous elements through the skin might occur, and that thus held back, these substances could act as irritating factors in the production of the dermatitis.

In addition, we investigated six cases of psoriasis and three miscellaneous cases, embracing one case each of lymphoblastoma, eczema in an adult, and scarlet fever.

Table 3 gives a detailed account of the six senile eczema cases studied

Table 4 gives our results in the six psoriatic cases investigated.

Table 5 shows in detail the three miscellaneous cases examined.

Table 6 gives a summary of our results expressed in amounts per hundred cubic centimeters We found that the normal average nonprotein nitrogen per hundred cubic centimeters of the sweat is over twice that in the blood and that the urea nitrogen tends to be a little higher. The percentage of urea nitrogen in the nonprotein nitrogen of sweat is approximately the same as in blood.

TABLE 6—*Summary Amounts in One Hundred Cubic Centimeters of Sweat*

		Blood Nonprotein Nitrogen per 100 C c		Solids		Nonprotein Nitrogen		Urea Nitrogen	
Diagnosis	No of Cases	Range, Mg	Average, Mg	Range, Gm	Average, Gm	Range, Mg	Average, Mg	Range Mg	Average, Mg
Normal (pilocarpin)	14	28.5 to 49.1	30.1	0.580 to 2.200	0.967	28.0 to 200.0	76.4	14.0 to 63.0	34.4
Normal (no pilocarpin)	5	28.5 to 36.3	31.5	0.404 to 0.866	0.680	32.0 to 66.6	50.2	20.0 to 41.0	30.6
Senile eczema	6	28.6 to 37.5	32.0	0.658 to 1.448	0.985	33.0 to 86.0	53.2	13.0 to 50.0	28.1
Psoriasis	6	23.1 to 36.3	28.8	0.370 to 1.492	0.831	30.0 to 51.7	42.5	20.9 to 31.5	25.6
Miscellaneous	3	35.8 to 44.1	39.7	0.640 to 0.880	0.727	26.0 to 48.0	36.0	17.8 to 26.0	20.6

Table 7 shows the amounts of nonprotein nitrogen and urea nitrogen eliminated per hour in the fourteen normal cases and in the dermatoses examined, and in addition the percentage of urea nitrogen in the nonprotein nitrogen

TABLE 7—*Elimination of Nonprotein Nitrogen and Urea per Hour*

		Nonprotein Nitrogen per Hour		Urea Nitrogen per Hour		Urea Nitrogen in Nonprotein Nitrogen	
Diagnosis	No of Cases	Range, Mg	Average Mg	Range, Mg	Average, Mg	Range, per Cent	Average, per Cent
Normal (pilocarpin)	14	29.80 to 131.00	78.35	10.80 to 78.40	37.50	31.50 to 66.97	47.77
Normal (no pilocarpin)	5	44.76 to 121.90	75.47	26.64 to 76.00	46.50	58.36 to 64.83	61.34
Senile eczema	6	10.68 to 99.40 (42.30)	40.26 (28.40)	6.00 to 64.00 (23.00)	22.76 (14.60)	39.39 to 58.13	52.08 (50.14)
Psoriasis ..	6	54.00 to 95.55	66.84	33.14 to 54.20	42.18	54.81 to 69.60	60.73

As compared with the normal, the amounts of nonprotein nitrogen and urea nitrogen excreted hourly in the six eczema cases are appreciably diminished This difference is more marked if we exclude from the eczema group one case that showed values abnormally high compared with the other five The average urea nitrogen and nonprotein nitrogen excreted per hour, excluding the eczema case in which abnormally high values were obtained, is expressed in parentheses

It is of interest to note that if we exclude the case of eczema in which such high values were obtained, the greatest amount of nonprotein nitrogen and urea nitrogen excreted per hour in senile eczema is lower than the smallest amounts excreted in the psoriatic cases

The six cases of psoriasis examined show no appreciable change from the normal

The three miscellaneous cases show a distinct decrease in the output of nonprotein nitrogen and urea nitrogen when compared to the normal However, this series is too small to have any statistical value.

CONCLUSIONS

From the foregoing study, there is an apparent diminution in the output of nitrogenous elements of the sweat in so-called senile eczema

This interesting finding may have an important bearing on the etiology of this condition

The disturbance of salt metabolism, as expressed in the urine in chronic nephritis, may have its analogue in the sweat. The study of the salt output in sweat must be undertaken, therefore, to determine whether this bears, together with the nitrogenous elements, on the etiology of this condition

ABSTRACT OF DISCUSSION

DR J FRANK SCHAMBERG, Philadelphia Work of this kind will tend to increase the dignity of dermatology and will serve to indicate to others working in endocrinology and pathology that our members are doing work of fundamental character His work is of great interest and I think the undertaking is worthy of comment Ordinarily, the blood urea nitrogen is about one half of the nonprotein nitrogen, and I observe that this is primarily true when pilocarpin has been given, and when it has not been given the urea nitrogen exists in a much higher degree than the nonprotein nitrogen I presume that unless there was the greatest care of the rubber sheet, and so on, the nonprotein nitrogen might be increased and that therefore the urea nitrogen is the most important guide to the nitrogenous constituents in the sweat I was interested and somewhat astonished to hear that no uric acid was found in the sweat I have no doubt as to the accuracy of the methods employed and that this is a definite finding, but I would suggest that Dr Barney in his further studies keep this in mind Adler found uric acid in the sweat and said it was present in about one-tenth the amount excreted in the urine, almost three times that present in the blood The figures relating to the existence of nitrogenous contents in the blood in eczema are extremely interesting and may be of value in determining the etiology of the disease, and yet I think we should be very cautious before forming conclusions in view of the small number of cases under observation I understand that this is a preliminary report and is so designated, and that no definite conclusions are to be drawn from it The figures are suggestive and should be followed up, for anything that throws light on such a stubborn condition as senile eczema will be of great assistance in therapeutics

DR E E SMITH, New York About twenty-five years ago I was interested in some studies on sweat and particularly the presence of uric acid in sweat I made a very careful study, but failed to find uric acid present in any instance

DR GEORGE C ANDREWS, New York I should like to ask whether Dr Barney has found any differences in the sweat from different parts of the body, and whether the changes in the chemical content of the sweat secretion compared with the chemical changes in the blood It seems to me that Plaggemeyer and Marshall found very little analogy between the changes in the blood and in the sweat. They were quite distinct

DR WILLIAM ALLEN PUSEY, Chicago. Dr Schamberg said that such papers add to the dignity of dermatology. I might add, also to the complexity of dermatology. With the way these youngsters are coming on, this section bids fair to become within a few years a school for the nestors of the section. We are having a great deal of discussion now as to how to prepare our successors in dermatology. It seems to me that the work which is being done by the young men turned out by Wile and Wende and others leaves nothing to fear for the future. I know of nothing more impressive than these young men rising on the shoulders of their predecessors and then flying away. Within a few years we shall have a society of young dermatologists with the older ones trying to get in. I heartily congratulate Dr. Osborne and Dr. Barney on the work they have been doing.

Dr. Robert E. Barney, Ann Arbor, Mich.: Replying to Dr. Andrews, we paid no particular attention to the parts of the body from which sweat was obtained. This is a very interesting thought and perhaps at some future time we may investigate that phase. As to the analogy between the blood and sweat changes, there was no parallelism between the two.

THE PATHOLOGY OF PEPTIC ULCER OF THE STOMACH *

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This review will be confined to a consideration of the peptic ulcer, round ulcer or simple gastric ulcer, and will omit that interesting group of acute ulcers, all discussed by Schultze,[1] which occur in acute infectious disease or which result from passive hyperemia with petechiae, from erosion by foreign bodies and other causes, and which tend to heal rapidly and leave no serious after-effects. The peptic ulcer is acute in its early stages but is peculiar in that it tends to persist and become chronic, heals slowly if at all, and may exhibit several dangerous complications and sequels.

GROSS MORBID ANATOMY

The peptic ulcer is usually a single, round or oval, sometimes distinctly elongated elliptic ulcer, situated in the posterior wall of the pyloric portion of the stomach near the lesser curvature. Except in the earliest stages, the ulcer is deep, may show a "punched out" appearance, may be funnel shaped or "terraced," usually has somewhat elevated, firm, sometimes overhanging edges, and is indurated about the base and margins. Aschoff [2] and Stromeyer [3] emphasize the fact that, in many of the terraced or conical ulcers, the edge nearer the pyloric orifice is flattened or less steep than the other parts of the margin, presumably because of the rubbing of food as it enters and passes through the narrow pyloric portion of the stomach. The peritoneal surface opposite the early ulcers often shows a local fibrinous exudate which ultimately results in fibrous adhesions between the stomach and neighboring structures. In from 5 to 10 per cent. of the cases, the ulcers are multiple, there usually not being more than two. Gruber and Kratzeisen,[4] however, report that 40 per cent. of ulcers are multiple. Only 6 per cent. are in situations other than the so-called ulcer-bearing area.

Since subtotal gastrectomy for ulcer has been practiced, much more in detail has been learned about peptic ulcer than was possible with necropsy material. With material from a large number of subtotal gastrectomies, Askanazy [5] has described the newer pathology of peptic ulcer, which we have been able to confirm by the study of ten cases in which operation was done by Dr. M. E. Blahd. It can now be said that, although the base of large chronic ulcers may be relatively clean, most ulcers are covered, and partly filled in, by an adherent granular or slimy, pale, bloody or brown tinged exudate. Under this is a layer of gelatinous, pallid or sometimes brown tinged, moderately firm material, made up of necrotic and granulation tissue. The next layer is of firm scar tissue, which, if sufficiently extensive, may, by its retraction, produce serious permanent deformity of the stomach. Hyperemia is common not only around the ulcer but often throughout most of the part of the stomach removed surgically. Hemorrhage is frequent in the exudate in the earlier ulcers and may occur in other places in the mucosa and submucosa. Chronic hypertrophic gastritis is a common, but not constant, accompaniment.

MICROSCOPIC APPEARANCE

Although, on the basis of necropsy material, peptic ulcer was formerly regarded as exhibiting little or no acute inflammation, the study of surgical material permits ready confirmation of Askanazy's observation that acute exudative inflammation is constant in the early stages. Our material includes peptic ulcer in the early stage, when there is merely loss of surface epithelium, through intervening stages to large chronic ulcers, one of which shows carcinomatous transformation. It is easily possible to find the four zones of Askanazy; namely, zones of exudation, of fibrinoid necrosis, of granulation and of cicatrization.

The exudate may be purulent, sanguinopurulent, fibrinopurulent or occasionally catarrhal. Polymorphonuclear leukocytes, which are common in the exudate occupying the surface of the ulcer, may collect in small circumscribed masses, and are also found in the zones of necrosis and granulation as well as in the surrounding mucosa and deep in the wall of the stomach. Sometimes lymphoid and plasma cells predominate. Eosinophils are often present in small numbers, but may be found in all the coats of the stomach near the ulcer. Fibrin is frequently present in the exudate on the surface of the ulcer. Fibrinous exudate may occur on the serosal surface in association with even early shallow ulcers. Hyperemia, often with edema, is common. Minute hemorrhages in the exudate, in the ulcer and in the neighboring mucosa, are frequent, as the result either of the inflammatory hyperemia or of rupture of vessels in the granulation tissue.

The zone of fibrinoid necrosis, which is grossly a gelatinous material, varies in thickness and in constitution. In addition to the ordinary cytoplasmic and nuclear changes of necrosis, there are hyaline masses which react chromatically as does fibrin. There are, however, no network, no nodules, no asters, to characterize it as fibrin. Fibrinoid material is variable in amount but may be present in ulcers of any stage. According to Askanazy; it is probably derived from the fixed connective tissue, which becomes hyaline as it undergoes necrosis.

Granulation tissue, variable in extent and not different from granulation elsewhere, appears early in the course of the ulcer and is usually still present in large,

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[3] Stromeyer, F.: Die Pathogenese des Ulcus ventriculi, zugleich ein Beitrag zur Frage nach den Beziehungen zwischen Ulcus und Karzinom, Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's) **54**: 1, 1912.

[4] Gruber, G. B., and Kratzeisen, E.: Beitrage zur Pathologie des peptischen Magen- und Zwölffingerdarmgeschwürs, Beitr. z. path. Anat. u. z. allg. Path. **72**: 1, 1924.

[5] Askanazy, M.: Ueber Bau und Entstehung des chronischen Magengeschwürs, sowie Soorpilzbefunde in ihm, Virchows Arch. f. path. Anat. **234**: 111, 1921; **250**: 370, 1924.

old, chronic ulcers. The zone of necrosis often advances at the expe [illegible] zone.

When an ulcer is [illegible] marked cicatrization, it is usually a deep ulcer that involves the muscular coats. The interruption of continuity of mucosa, and other coats, implies also an interruption of continuity of blood vessels and nerves. The density of the scar appears to inhibit regeneration of the smooth muscle.

Acute lymphoid hyperplasia is frequent, especially in the earlier stages, and involves not only the nodules in the stomach but also the neighboring lymph nodes.

OTHER MORPHOLOGIC FEATURES

An examination of the features pointed out above shows that the peptic ulcer does not differ essentially from other ulcers in inflammatory reaction. The situation and nature of the lesion demand special consideration of the disturbances of blood vessels and nerves.

The vascular lesions include inflammations, sclerosis and hypertrophy. Acute periarteritis, with its perivascular infiltration of polymorphonuclear leukocytes, lymphoid and plasma cells, and acute arteritis with penetration of these cells into the vascular wall, are common in and about the earlier ulcers. Similarly, chronic lesions may occur with older ulcers. Endarteritis deformans and obliterans are frequent. These may be due to inclusion of the intima in the inflammation of the vessel walls or to thrombosis with organization and even canalization. Numerous observers have noted the frequency of arteriosclerosis. Ophuls [6] found it not only in older patients but also occasionally, apparently localized to the stomach, in young individuals. Askanazy, however, has found ulcers in patients of from 50 to 60 years or more without sclerosis of the gastric vessels. Hypertrophy of the media is rare in our experience.

As the ulcer extends and penetrates, the intrinsic nerves are severed. We have not observed this local acute neuritis, but subacute and chronic neuritis and perineuritis are common not only in the ulcer margins but also at some distance from the ulcer. In the scar tissue, Askanazy found a reduction in number of ganglion cells and loss of myelin sheath of many of the fibers. In the older ulcers, the nerve fibers may become elongated and coiled to produce masses closely resembling the amputation neuroma. If the pain of ulcer is due to irritation or exposed inflamed nerves, the relief by administration of alkali can be explained by temporary neutralization of acid.[7] The administration of magnesium sulphate probably acts through its depressant action on the nerves.

Peptic ulcers tend to penetrate rather than to extend widely laterally. Crohn, Weiskopf and Aschner,[8] by roentgenoscopic examination, find that the ulcer reaches its maximum size in a few weeks, and does not further increase in lateral diameter.

In many of the early ulcers, there is a fairly widespread acute gastritis, which may be superimposed on the chronic hypertrophic gastritis, which, in our experience, accompanies a large number of ulcers of all stages.

In addition to the marginal hyperemia, edema, hemorrhage and inflammation, the epithelial cells show cloudy swelling, mucinous degeneration with goblet cell formation, necrosis and multiplication. Mitotic figures are not infrequent. The more extensive multiplication of epithelium may result in papilliform projections about the margin of the ulcer or in extension downward of epithelial growth into the deeper tissues. Possibly this downward growth is responsible for the development of cancer. There are intermediate stages in which it is often difficult to distinguish between epithelial hyperplasia and tumor growth.

HEALING

There is no doubt that even chronic ulcers may heal, as demonstrated in scars observed especially in postmortem specimens. The roentgenoscopic observations of Crohn, Weiskopf and Aschner [8] show that the crater often fills in, but this is no evidence of true healing. Ivy,[9] on the basis of experimental work, regards the healing as taking place in two stages; the first, a stage of organization and consolidation of the defect with infolding and apposition of mucosal cells to the organizing tissue; the second, a stage of regeneration of mucosa. Griffini and Vassale [10] long ago pointed out the striking regenerative capacity of the gastric mucosa. New glands are formed from the cells of preexisting glands, and the acid cells represent a differentiation of the primary gland cells. Tunica propria grows, and a complete mucous membrane is formed.

COMPLICATIONS

Numerous complications may arise. Hemorrhage is so frequent as to be regarded as a symptom. The larger hemorrhages are probably often due to a necrosis that involves blood vessels. The necrosis may extend so rapidly that protective thrombi are not secure and are easily displaced by peristalsis, distention or increased blood pressure. General peritonitis following perforation is not as common as it might otherwise be, because of the protective adhesions that form as a result of the early localized fibrinous peritonitis.

There is no doubt that cancer follows peptic ulcer. The chief problem concerns the frequency rather than the possibility of this sequel. Wilson and MacCarty [11] reported that 71 per cent. of peptic ulcers show cancerous change. It is conceivable, however, that among the cancers in this series there were included cases that might be interpreted by others as inflammatory epithelial proliferation. MacCarty [12] subsequently stated that all ulcers exceeding a diameter of 25 mm. might be expected to show cancer. Extraordinary care must be taken, as indicated by Moskowitz,[13] before cancer can be excluded from the pathologic diagnosis, but in one of the ulcers in our material which measured 30 by 25 mm., there was no cancer. Ewing [14] found that only 5 per cent. of ulcers show cancer. The infrequency of cancer is also emphasized by Gruber [15] and Gruber and

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13 Moskowitz, L· Ueber einen Fall von jungem "Ulcuscarcinom" des Magens, Virchows Arch f path Anat **253**: 511, 1924

14 Ewing, J The Relation of Gastric Ulcer to Cancer, Ann. Surg. **67**: 715 (June) 1918

15 Gruber, G B Beitrag zur Frage nach den Beziehungen zwischen Krebs und peptischem Geschwur im oberen Digestionstract, Ztschr. f Krebsforsch **13**: 105, 1913

Kratzeisen.[4] Clinically, Smithies,[16] and also Moynihan[17] and others, find that a large percentage of cancer cases give a history of preceding ulcer. Friedenwald[18] could not support this view, and Taylor and Miller[19] were able to disclose such a history in only 17 per cent. of their 182 cases of cancer. Pathologically, no information of importance can be obtained by the examination of widespread cancer, and clinically the history of symptoms may be due to the cancer itself. In the peptic ulcers we have studied, the incidence of early cancer does not exceed 10 per cent.

Cicatricial deformity of the stomach, stenoses and small diverticula are too well known to require discussion in this paper.

PREDISPOSING CAUSES

From a study of necropsy material,[20] females are found to be more commonly affected than males. Martin[21] gives the average age for males as 36.7 years and for females 27.1 years. The lesion may, however, occur at any period of life. Draper's[22] studies indicate that one type of individual is more susceptible to peptic ulcer than to gallbladder disease. There is no clear cut evidence that neurotic persons are more susceptible than others, and in any consideration of this feature the difficulty of clinical differentiation between peptic ulcer and neurosis must always be borne in mind. In the material of Gruber and Kratzeisen, peptic ulcer is no more common among victims of grastroptosis than among others. It is difficult to say that anemia predisposes to ulcer, since the ulcer may be responsible for the anemia. Ivy,[9] however, finds that, in animals, exhausting disease seems to be important in the persistence of ulcer and perhaps also in its origin. Pappenheimer and Larimore[23] discover a high incidence of gastric ulcer in animals on deficient diets The frequent occurrence of gastritis, acute and chronic, suggests the influence of these lesions as predisposing.

EXCITING CAUSES

When any disease is ascribed to so many causes as is peptic ulcer, there is great probability that no one cause is responsible. It is difficult, however, to define the interrelations of the various possible causes. In the following discussions, there will be a consideration of the more outstanding features that have been disclosed by clinical, pathologic and experimental studies.

FAULTS OF SECRETION

It is now well known that peptic ulcer is not accompanied by a constant alteration of the acidity of the gastric juice. Nevertheless, it is conceivable that at the time of origin of the ulcer there may have been a significant change of acidity. By anastomosis of the stomach and the small intestine, so that unneutralized acid comes in direct contact with the intestinal mucosa, Mann[24] observed the production of peptic ulcers that tend to become chronic. It is doubtful that these studies can be applied to peptic ulcer of the stomach, since, as Matthes[25] has shown, the intestinal mucosa is more susceptible to the deleterious action of hydrochloric acid than is the gastric mucosa. Small islands of intestinal mucosa are occasionally found in the stomach, but the incidence of these heterotopic inclusions is probably much less than that of peptic ulcer. That gastric mucosa offers some special disposing characters is indicated by the peptic ulcers in gastric mucosa isolated in Meckel's diverticulum.[26] Ivy[9] found that when caution is employed in the application of gastro-enterostomy clamps, duodenal ulcers do not occur. The ulcers in Mann's animals are probably not traumatic in origin. Mann's studies, however, are of great value as concerns human gastrojejunal ulcer, for, in the experience of Moynihan,[27] subtotal gastrectomy, with the coincident removal of the acid secreting part of the stomach, practically eliminates the chance of recurrence of the gastric ulcer and of the development of gastrojejunal ulcer Ivy and his collaborators[28] produced chronic ulcers by doses of roentgen irradiation which coincidentally depress secretion. That hyperacidity leads to persistence of the gastric ulcer is doubtful in view of the frequent incidence of anacidity in patients, but the problem has not as yet been solved experimentally because no permanent neutralization, and therefore no control state, has been effected.

Clinically, it is believed that stasis of gastric contents is important in producing chronicity of the ulcer, and this is supported by the experiments of Bolton,[29] of Friedman and Hamburger,[30] of Ivy,[9] and of others. Bolton considers that this is due to the general irritability of the gastric contents. Sweet and his collaborators[31] take the view that the traction of hyperperistaltic muscle on the margins of the ulcer delays healing. Ivy has demonstrated such hyperperistalsis and has also shown that manipulation of an ulcer in an exposed pouch delays healing. Hyperacidity might dispose to persistence of the ulcer by stimulating peristalsis, but hyperperistalsis can occur in partial obstruction without hyperacidity. Thus, although hyperacidity may play a part in some instances, it is not a necessary feature in the persistence of peptic ulcer.

VASCULAR LESIONS

Although the conical shape of the ulcer suggests that it is due to infarction, the same form might be due to greater destruction of the mucosa and submucosa than of the more resistant deeper coats. Vascular occlusion might be due to spasm, to endarteritis, to thrombosis, to bland embolism or to septic embolism. Vascular spasm will be referred to in the discussion of neuromuscular influences. Acute and chronic endarteritis with thrombosis are common, but it is impossible to say whether they are primary or secondary. Arteriosclerosis is common, but even though it may be local in the stomach of young persons,[6] it is not usually a severe disease at the average age of ulcer incidence, and it is sometimes absent in older victims of ulcer.[5] As shown by Litten,[32] and by Ivy, bland embolism of the gastric arteries, without other lesions, does not produce infarction. The injection, by Cohnheim,[33] of lead chromate, and by Payr,[34] of alcohol and of formaldehyd, led to infarction, but in these experiments there is, in addition to the occlusion of the arteries, an associated direct destruction of tissue. Although, as Berlet [35] has shown, the vascular supply of the pyloric portion of the stomach is poorer than in the cardiac end, infarction is rare in the human stomach, is usually massive, and occurs, as Baumann [36] points out, only when additional vascular lesion reduces the normally rich anastomosis. The result of an infective embolism is to be regarded as an abscess rather than an infarct. It is of interest that those diseases in which bland embolism is common, such as endocarditis and thrombosis, rarely show associated peptic ulcer, and the same is true of septicemias and pyemias.

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PARASITES

Various organisms have been found in gastric ulcer, but interest centers about molds and certain bacteria, especially the anhemolytic streptococcus. Molds are common, and Askanazy reports the production of peptic ulcer by their injection. Kratzeisen,[37] confirming Hartwich,[38] regards the molds as saprophytes or symbions that merely tend to delay healing, but Kirsch and Stahnke [39] were unable to establish this view experimentally. Turck's [40] report that feeding of colon bacilli produces gastric ulcer has not been confirmed.

Rosenow [41] states that the "usual ulcer of the stomach and of the duodenum in man is primarily due to a localized hematogenous infection of the mucous membrane by streptococci," a view supported by Nakamura,[42] Haden [43] and others. McMeans [44] was unable "to support the view of elective affinity expressed by Rosenow." Celler and Thalheimer [45] could not convince themselves that anhemolytic streptococci "have been proven as yet to be the factor which either initiates the ulcer or prevents healing." Although many organisms have a certain tissue selectivity, as, for example, the pneumococcus, the gonococcus, the diphtheria bacillus and the dysentery bacillus, these are examples of species rather than strains within a species. The novel hypothesis of strain selectivity requires extraordinarily strong and indubitable support. Holman [46] emphasizes the difficulty in isolating streptococci in pure culture, a fact now well established and not in accord with the rapidity of isolation in Rosenow's work. Equally important is the fact that Rosenow worked with cultures from supposed atria of infection more often than from gastric ulcers. Ulcers were produced in 60 per cent. of the rabbits inoculated, but the number of animals employed allows of a considerable error from random sampling, and it is important to note that ulcers were not produced in 40 per cent. of the inoculated rabbits. Holman [47] has demonstrated that streptococci are extremely common nonexperimental invaders of laboratory and other animals, and may locate in many tissues where local conditions are favorable. Hence, the recovery of streptococci in experimental animals cannot be accepted as necessarily significant. In order to establish the hypothesis of Rosenow, it would seem essential to be absolutely sure of pure cultures, preferably from the ulcer itself rather than from a supposed atrium of infection, to work with animals in which the incidence of nonexperimental invasion is low, to produce ulcers almost constantly, and to recover an organism that can be identified as that which was injected. These criteria may seem severe, but when a revolutionary hypothesis is advanced, it must meet the most rigid criticism before it can be accepted, even though from many points of view it may be exceedingly attractive.

NEUROMUSCULAR INFLUENCES

Von Bergmann [48] points out the possibilities that spasm of muscularis mucosae or of arteries, or both, might cause ischemia and consequent ulcer. Spasm in the retinal arteries may persist long enough to interfere with nutrition, but this principle cannot be conclusively applied to the stomach in view of the unlikelihood of infarct, as pointed out in discussing the vascular lesions. Spasm might be due to acute neuritis of the stomach wall, but although it is possible that this lesion may be primary, it is probably much more often secondary. Mogilnitzkie [49] found atrophy of ganglion cells and gliosis in the sympathetic system of four ulcer patients; but, without controls in other patients, the observation is of questionable value. Bedarida [50] injected neurin, which paralyzes motor nerve terminals, into the stomach and produced ulcers. It is impossible to state that the paralysis caused the ulcer because similar treatment by a wide variety of nonparalyzing agents has the same

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effect. According to Durante,[51] ligation and section of the splanchnic nerves is followed by gastric ulcer. Ivy[9] found that, although in dogs which died immediately after section of the vagi and splanchnics there were petechiae in the gastric and duodenal mucosa, in those which survived from one week to four months, no gastric or duodenal lesions were found. Molodaja and Egoroff[52] obtained the same results. The relation of hypermotility to healing has been discussed above. The hypermotility is apparently an intrinsic mechanism, enhanced by the presence of functionating extrinsic nerves (Ivy).

ORGANS OF INTERNAL SECRETION

The influence of ductless glands is no clearer in this connection than it is in many others. Biedl[53] noted erosion of the gastric mucosa following injections of epinephrin, but we hold this to be of little significance because of the fact that injection of many other substances may lead to the same lesion. Friedman[54] found ulcers of the stomach in five of twelve dogs subjected to repeated injections of epinephrin. In contrast, Mann[55] found a high percentage of gastric lesions in bilaterally suprarenalized cats and dogs. In forty suprarenalized dogs, Ivy found only one ulcer, although there were twenty instances of petechiae and hemorrhagic erosion. Friedman found ulcers following injection of the thyroid gland and also following partial thyroidectomy. Removal of part of the thyroid and of one suprarenal was not followed by ulcer formation. In those instances in which abdominal operations are necessary for the experiment, trauma to the stomach may occur. Even ether anesthesia may be followed by petechiae and erosions (Ivy). The assumption that partial removal of ductless glands is followed by hypofunction is unjustified. The injection of such substances as epinephrin or thyroid gland does not lead necessarily to a state identical with hyperfunction. The studies of the relationship of disturbances of ductless glands, whether they are supposed to operate directly or through the intermediation of the autonomic nervous system, have not been sufficiently correlated to permit of satisfactory conclusions.

CYTOLYSINS

Of interest are the experiments of Bolton,[29] who prepared a cytolytic immune serum by injecting gastric cells into animals of heterologous species. In his experiments, the serums appear to be highly specific for gastric mucosa, and on injection into the peritoneum or into the gastric mucosa, produce gastric ulcers. Hemolytic immune serum does not have an equally intense effect. We have obtained essentially the same results (unpublished). In order for this to be applicable to man, it will be necessary to prepare serums by injection, not only into the homologous species, but into the same animal. In other words, there must be not merely an isogastrolysin but an autogastrolysin. We have been unable to produce such a serum, and on the basis of other immune phenomena regard it as an experiment with well nigh insurmountable difficulties.

Kohler[56] has offered the hypothesis that a deficiency of antipepsin in the blood predisposes to peptic ulcer by removing the resistance to autodigestion of the mucosa, but Orator[57] is unable to confirm this supposition in a study of fifty cases.

SUMMARY

The clinical, pathologic and experimental studies briefly referred to above have not resulted in a final conclusion as to the origin of, or the reasons for persistence of, peptic ulcer. The nature of the lesion has been clarified by the study of fresh material removed by operation. The inaccessibility of the field, the abnormalities produced by rendering it accessible, the complexity of nervous and vascular supply, the unsettled state of knowledge concerning the secretory and motor functions of the organ, the difficulty of establishing a norm of form and function, the differences between lower animals and man—these and other factors have led to pitfalls in investigating the condition. The painstaking care and indefatigable energy of the numerous investigators of the disease have, however, thrown important light on the subject and have prepared the way for further and more fruitful investigations.

In summary, it may be said that pathologically peptic ulcer is an inflammatory lesion so situated that gastric juice probably emphasizes the destruction of tissue. That the inflammation is primary is suggested but not proven. Various predisposing causes seem to be operative in the patients, but these are not conclusively established. The direct exciting cause of the ulcer has not yet been disclosed in such a fashion as to be beyond doubt. The persistence or chronicity of the ulcer depends on a variety of factors, none of which can be said to operate in all cases. Probably several of these factors are coincidentally in evidence. Thus, there must be considered especially hyperacidity, stasis of neuromuscular or obstructive origin, the irritative and traumatic influence of gastric contents, and the traction of muscle about the ulcer.

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Filtrability of Vaccinia Virus.—Although the filtrability of vaccinia virus has been the subject of dispute, and many careful observers, including Thomson, who has recently investigated this point, have obtained negative results, there is now no doubt that this virus is capable of passing through filters that hold up the ordinary visible pathogenic bacteria. The chief filter that has been used for this purpose is the Berkefeld, and it is generally agreed that only a small portion of the virus comes through, the bulk of it being retained by the filter. Thus, in course of ten filtering experiments with vaccinia, Rouget only got positive evidence of the presence of vaccinia virus in the filtrate in four, and found it necessary, as others have done, to inoculate large amounts of this filtrate in order to demonstrate the presence therein of the virus. All of the successful investigators appear to have taken great care to obtain the "pulp" as fresh as possible, and to break it up thoroughly. In order to set free the virus from the tissue cells containing it, Negri employed in addition maceration in the cold store for from twelve to sixteen days, a procedure that undoubtedly promotes cellular autolysis. Similarly Nicolle and Adil Bey failed to get passage of the viccinia virus through the Berkefeld filter until they first freed the virus from the tissue cells by submitting the suspension of pulp to digestion with a solution of trypsin for five hours at 38 degrees C.—Special Report No. 98, Medical Research Council, London, 1925.

THE ROENTGENOLOGIC DIAGNOSIS OF PEPTIC ULCER*

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Stripped of its minor details, the routine examination at the Mayo Clinic for all gastric and duodenal lesions comprises two principal features: a bariumized carbohydrate meal to test motility, and a screen examination six hours later, at which time an aqueous suspension of barium is given.

The motor test-meal consists of 2 ounces (62 gm.) of barium sulphate in an equal portion of well cooked cereal, and is given in lieu of breakfast. A retention from this meal after six hours, if no food has been taken meanwhile, is of importance for three reasons: (1) It is strongly indicative of an organic lesion of the stomach or duodenum; (2) in conjunction with certain other phenomena, to be mentioned later, it is diagnostic of duodenal ulcer, and (3) the presence of gastric retention has an important bearing on treatment.

At the fluoroscopic examination, the patient drinks a mixture of 4 ounces (125 gm.) of barium sulphate in 8 ounces (236 c.c.) of water. Special note is taken of the first swallows of the mixture as they descend from the esophagus into the stomach. After a small amount has been taken, the walls of the stomach are approximated by palpatory pressure so that their internal topography can be inspected. Attention is then directed to the duodenum, which usually fills to best advantage early. Its filling is also assisted by grasping the gastric antrum, applying the thumb of the right hand to the greater curvature and the fingers to the anterior wall, exerting pressure toward the pylorus. Blocking the distal portion of the duodenum by manual compression will sometimes be of aid. By pressure over the duodenal bulb, its contents are thinned out to permit inspection of its walls. To perform any of these manipulations effectively, it is essential that the patient's abdominal muscles be relaxed; often this relaxation is assisted by seating him for a short time. After the stomach is filled, the patient is turned to various angles so that the gastric and duodenal contours can be shown in different views. Following this, the patient should be examined on the trochoscope in the prone, supine, oblique, lateral and Trendelenburg positions. To conclude the examination, films are made for purposes of record and for further study.

ROENTGENOLOGIC SIGNS OF GASTRIC ULCER

Gastric ulcer has but one sign on which the diagnosis can be made with confidence, and that is the visualized crater of the ulcer, the niche, or its exaggerated form, the accessory pocket. In favorable situations, the niche is visible as a local prominence on the gastric silhouette. Many ulcers are situated so near the lesser curvature that in the sagittal view the niche projects sufficiently to be visible.

Ulcers on the posterior wall, in the vertical portion of the stomach, may often be brought into profile by turning the patient into an oblique or lateral position. These ulcers are sometimes revealed in the early stages of gastric filling. As the barium stream first enters the stomach, it is likely to fill the crater of an ulcer high on the posterior wall so that its site is marked by a denser circumscribed area. A posterior ulcer in the lower portion of the stomach may be revealed as a local density by approximating the gastric walls.

The accessory pocket of a perforated ulcer which has invaded an adjacent organ is so striking that it will hardly escape recognition. It is seen most commonly as a round or oval shadow projecting from the lesser curvature. Its diameter varies from 2 or 3 cm. upward. Quite often its barium content has a level upper margin capped by a bubble of air.

SECONDARY SIGNS OF GASTRIC ULCER

Secondary signs of gastric ulcer include retention from the six-hour meal, hour-glass stomach (either spastic or organic), local fixation by adhesions, hypotonus and anomalies of peristalsis. These signs are inconstant, and may have causes other than ulcer. When a niche is demonstrable, their aid is not needed. They have a certain importance, however, in two types of ulcer; namely, mucous erosions and prepyloric ulcers.

A mucous erosion is too shallow to produce a recognizable niche. An incisura may point to the site of the ulcer, the rugae may converge toward it, and a residue from the motor meal may enhance suspicion of ulcer. It is imperative, however, to construe these signs with care.

Gastric ulcers in the vicinity of the pylorus, even though the depth of their craters is considerable, are extremely difficult to reveal as true niches. Usually the area around the ulcer is irregular, and there may be a residue from the motor meal. The irregularity is, no doubt, partly spastic and partly organic, but from the picture, it is impossible to determine whether the filling defects are due to a gastric lesion or to gastrospasm from extrinsic causes.

Ordinarily, spasm of the stomach from extrinsic causes will be extinguished by antispasmodics, while that due to an intrinsic lesion will persist. Hence, a second examination should be made after giving an antispasmodic to full physiologic effect. Any deformity that persists at the second examination is either organic or, if spastic, due to a gastric lesion. One exception to this rule is to be noted: gastrospasm associated with duodenal ulcer will persist, but the presence or absence of a duodenal ulcer should be obvious at the first examination.

CARCINOMATOUS ULCERS

Ulcers that reveal only microscopic evidences of cancer and produce niches of ordinary size cannot be distinguished roentgenologically from benign ulcers. Very large ulcers are open to suspicion, for those with a diameter of 2.5 cm. or more are often malignant.

Another variety of malignant ulcer, namely, the frank neoplasm with ulcerous excavation, has roentgenologic characteristics which indicate its nature. Its crater is deep but seldom projects externally to the plane of the gastric mucosa. Surrounding it is an elevated, overhanging ridge of neoplastic tissue. If situated near the lesser curvature and subjected to palpatory pressure, the profile of its crater is crescentic. If situated on the posterior wall, distant from the curvature, the crater is seen during palpation as a central density encircled by a translucent zone. Without exception, ulcers with such features have proved at operation to be malignant.

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

ROENTGENOLOGIC SIGNS OF DUODENAL ULCER

The roentgenologic manifestations of duodenal ulcer are of two classes: (1) direct signs, localized to the duodenum, and (2) indirect signs, all of which are gastric.

Direct signs comprise: (*a*) the niche, and (*b*) bulbar deformity without a niche. Usually in the latter case, the niche is too shallow to be visible.

The niche is seldom large and is often extremely small, so that careful observation may be necessary to discover it. Niches are most likely to be found on the mesial border of the bulbar shadow, but they are sometimes on the basal margin, or, very exceptionally, on the lateral border. By manual pressure over the bulb, a niche on the anterior or posterior wall can often be revealed as a small dense fleck within the fainter bulbar shadow.

In most instances, a niche is accompanied by organic or spastic deformity, either in the vicinity of the niche or on the opposite border of the bulb. General deformities seem to be less common when the niche is centrally situated, and it is likely to be overlooked unless the bulb is manipulated as described.

When the bulbar contour is extensively deformed, almost any projecting recess may be assumed to be the niche, and only the most careful comparison with the findings at operation will prove or disprove the assumption. Further, the presence of a niche is not essential for diagnosis, except when no other deformity exists.

Constant deformity of the bulb is the mainstay of diagnosis. At times, cicatricial contraction is largely responsible for it; but, as a rule, it is dominantly spastic and often entirely so. The distortion takes a multitude of shapes. The bulbar shadow may be deformed on one side alone, commonly the mesial side, or on both aspects, or only at the base.

It must be admitted that deformity of the bulbar shadow is not absolutely characteristic of ulcer, and that real or apparent deformity may be due to other causes. When the bulb is but partially filled, the barium may be distributed so erratically that the shadow deformity resembles that of ulcer. By palpatory pressure, the cause of distortion should be obvious, but on single films the deformity might be mistaken for that of ulcer. Inflammatory processes in the region of the duodenum, particularly pericholecystitis, may cause duodenal deformity by adhesions. However, in my experience, less than 2 per cent. of mistaken diagnoses have been attributable to such adhesions. In this connection, it is worthy of mention that extensive adhesions often exist without distorting the duodenal outline. Cancer of the duodenum may produce deformity indistinguishable from that of ulcer, but it is extremely rare. In occasional instances, deformity seems to result from spasm induced by disease of the gallbladder or pancreas, or by more remote lesions, but it occurs so seldom that it may virtually be disregarded. The crescentic indentation of the bulb sometimes produced by the gallbladder, and deformity resulting from pressure of the bulb against the spine, will hardly deceive the examiner.

The indirect signs of duodenal ulcer, which are manifested in the stomach, are interesting, and in certain combinations may be important. Hypertonus is a common feature of nonobstructive ulcer. With the advent of obstruction, the stomach loses its tonicity and becomes enlarged. Hyperperistalsis occurs often. When obstruction is marked, antiperistaltic waves are sometimes seen. Hypermotility, as shown by an advanced position of the motor meal, is observed frequently. Obstructive ulcers cause gastric retention. Gastrospasm is exhibited as an incisura or an antral deformity.

As these secondary signs may be produced by other lesions, none, if taken singly, is diagnostic of ulcer. When bulbar deformity can be demonstrated, their aid is not needed. When obstruction is pronounced, it is difficult or impossible to fill the bulb and establish the fact of deformity. In that event, the combination of a large stomach of normal contour with hyperperistalsis and a six-hour retention is quite as diagnostic of duodenal ulcer as is bulbar deformity.

Ulcers beyond the bulb sometimes set up the triad of signs mentioned, and thus their diagnosis is feasible. In the absence of these signs, local deformities in the distal portions of the duodenum can scarcely be relied on for diagnosis, because of the irregularities of contour produced by the valvulae conniventes in this portion of the bowel. Fortunately, ulcers in this situation are not common.

PEPTIC ULCER FROM THE INTERNIST'S STANDPOINT *

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The old idea that chronic gastric ulcer occurs with much greater frequency than chronic duodenal ulcer has been abandoned since clinicians (especially surgeons) awakened the attention of pathologists to the frequency of the latter lesion. In 1833, the relative proportion of gastric ulcers to duodenal ulcers in necropsy reports was 39:1; in 1870, it became 12:1; in 1913, in Berlin statistics, it had fallen to 1:1. These differences in reported incidence at necropsies appear to have been due partly to negligence of close examination of the duodenum in the earlier periods, partly (before the criteria for recognition of the boundary line between pylorus and duodenum had been established) to the assumption that juxtapyloric ulcers were all of gastric origin. The view, too, that gastric ulcer occurs much more often in women than in men and duodenal ulcer more often in men than in women, has given way to the view of approximately equal incidence of both gastric and duodenal in the two sexes.

ETIOLOGY AND PATHOGENESIS

Despite the enormous number of clinical, pathologic-anatomic and experimental researches directed toward the solution of the problems of etiology and toward the recognition of the successive links in the pathogenic chain of peptic ulcers, much still remains obscure.

How far constitutional and conditional factors are responsible for the origin and for the evolution of these ulcers is being much discussed. On the one hand, familial tendency to ulcer, and the relationships of ulcer to habitus, to diathesis, to vascular (especially capillary) anomalies, to the endocrine make up, and to disharmonies of the vegetative nervous system—all speak in favor of a constitutional predisposition, which invites further investigation. On the other hand, (1) the predominant localization of the ulcers in a special narrow pathway in the stomach, in the first portion of the duodenum, and at, or near, the margins of gastroenterostomy openings; (2) the differences in fate of acute erosions occurring in the regions mentioned and of erosions occurring elsewhere; (3) the relationships of ulcers to the degree of acidity of the fluids that bathe the parts and to the force of propulsion of those fluids; (4) the frequent coexistence of ulcers with foci of bacterial infection (in distant parts of the body as well as in the mucosa of the stomach and duodenum), and (5) the periodicity of exacerbations and recurrences of ulcer symptoms, relative to seasons of the year or to periods of physical and psychic stress and strain—all these are suggestive of the importance of environmental influences (mechanical, thermal, chemical, bacterial and psychic), acting directly or indirectly on predisposed areas of the gastro-intestinal tract. There is fairly general agreement at the moment that, in most cases if not all, a multidimensional etiology is responsible, and that both constitutional and conditional factors play a rôle.

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

The separation of the problem of genesis into two parts, (1) that of the origin of the primary nutritive disturbance of the mucous membrane that permits of the loss of substance through autodigestion, which we speak of as an "erosion" or "acute ulcer," and (2) that of a gradual transformation of such an acute lesion into a chronic, round and more or less funnel-shaped, indurated ulcer extending into the deeper tissues, would seem to constitute a real advance. Is the nutritive disturbance that permits of autodigestion and gives rise to the acute ulcer dependent on local vascular, neurotrophic, or metastatic toxi-infectious injury? And, once an acute erosion or ulcer has occurred, why is it that it sometimes heals, sometimes undergoes evolution into a chronically progressive lesion that slowly involves the deeper parts?

Contemporary inquiries are being directed to attempts to answer these two important questions. Attention is being focused on: areas of circulatory inferiority due to developmental anomalies of the capillaries or to spasms of smooth muscle; vagosympathetic dysfunctions; local inflammations of the gastric or duodenal mucosa; bacterial agents with selective affinities for special local tissues and areas; reflex disturbances of the secretion of hydrochloric acid and pepsin; alterations of local resistance due to absence of antiferments; vasospasms of neural or endocrine origin; functional-mechanical, thermal, and chemical conditions in the gastric pathway, and traumas from food particles, violently propelled gastric contents, or (in the case of marginal ulcer) the clamps or sutures applied at a preceding gastroenterostomy. The multiplicity of these inquiries alone is revelatory of the doubts that still exist concerning the etiology and concerning the conditions of evolution of the lesions.

SYMPTOMATOLOGY AND DIAGNOSIS

A striking feature of nearly all cases in which a diagnosis of gastric or duodenal ulcer is made is the long history of subjective digestive disturbances that has usually preceded. The patients recall various discomforts—burning, bloating, gaseous eructations, flatulence, heavy feeling in the abdomen, constipation, etc.—that they have experienced, often over a period of years. Many of them have been self-treated or even professionally treated for dyspepsia, indigestion, hyperacidity, constipation or gastro-intestinal neuroses until the advent of severe pain, of nausea or vomiting, of hematemesis or melena has awakened the idea of the existence of a graver malady. In rare instances, a severe hemorrhage or signs of perforation may appear, like a "bolt out of the blue" in patients who assert that they have earlier suffered from no indications whatever of gastric or intestinal disturbance, or that their symptoms have been so mild and transitory that they have not considered them worthy of especial attention.

The majority of patients, certainly, suffer from epigastric pain, and the character of this pain is often very significant, not only for the arousal of the suspicion of the existence of an ulcer but also as giving the clue to the site of the lesion.

In gastric ulcer, the pain is prone to appear as soon as food is ingested or soon afterward, subsiding gradually but appearing again when more food is taken, so that the patient comes to dread eating and often starves himself because of this dread. When the ulcer is at the cardiac orifice, the pain may come during the swallowing of coarser food; when it is at the lesser curvature, it may not appear until from a few minutes to an hour after eating; when it is near the pylorus, the pain may be still later in appearance (though usually within two hours) and is sometimes relieved by vomiting or by gaseous eructations.

In duodenal ulcer, the time of occurrence of the pain and its relation to the ingestion of food are usually very different from the description just given of the behavior in gastric ulcer, for in duodenal ulcer the pain is prone to occur from two to four hours after eating or in the night (hence sometimes called "hunger pain," "late pain," or "nocturnal pain"), and, moreover, if the ulcer is uncomplicated, the pain is immediately and completely arrested by the ingestion of food, a fact soon learned by the patient who carries biscuits in his pocket in the day time and has a glass of milk at his bedside at night in order that he may quickly secure relief. Thus, the patient with duodenal ulcer has no dread of eating; on the contrary, he usually has a good appetite, is prone to eat freely of all kinds of food, and often looks robust and even overnourished.

Nausea and vomiting are more frequently observed in gastric than in duodenal ulcer, but are characteristic of neither.

Though the pains mentioned have been called "typical" of gastric ulcer and of duodenal ulcer, respectively, and are extremely valuable clinical clues, the fact should not be lost sight of that there is in reality no history that is constant for either gastric or duodenal ulcer, since either may be symptomless, hunger pain may sometimes occur in gastric ulcer, and pains closely resembling "ulcer pains" may be experienced in other conditions (cholecystitis, appendicitis, intra-abdominal adhesions, tabes dorsalis, functional gastrospasms, etc.). Moreover, duodenal ulcer and gastric ulcer may coexist in the same patient with corresponding confusion of the "typical" symptomatology. Periodicity of the pain with seasonal recurrence is much more commonly encountered in duodenal ulcer than in gastric ulcer, though it may sometimes be observed in the latter also.

The necessity of caution in the evaluation of the anamnesis is, therefore, obvious. As a matter of experience, the history only rarely deceives us in the case of duodenal ulcer, whereas in the case of gastric ulcer, the most alert diagnostician will frequently be misled if he relies on subjective symptoms alone. It goes without saying, therefore, that every patient suspected of ulcer should be subjected to a comprehensive diagnostic study, with accumulation of anamnestic, general physical, roentgenologic and clinical chemical data, before judgment is passed on the nature of the conditions existing.

The general physical examination is more helpful in ruling out conditions that may simulate peptic ulcer than in supplying positive indications of ulcer itself. Tenderness at certain pressure points (front and back), evidences of muscular defense in the right upper rectus, and the state of the general nutrition may be of some aid in the recognition of ulcer, but these signs are notoriously unreliable.

Nor dare the study of the stomach contents, of the feces and of the blood be accredited with as much usefulness in the diagnosis of peptic ulcer as many textbooks would lead one to believe. Gastric hyperacidity is usually marked in about three fourths of the cases of duodenal ulcer, whereas in only about one fifth of the cases of gastric ulcer is it exhibited. The acidity conditions, even on fractional analysis, are very variable in both, so much so that one comes, as his experience grows, gradually to rely less, rather than more, on them for diagnostic differentiation. A combination of (1) gastric hypersecretion (gastrosuccorrhea), (2) prolonged emptying time of the stomach, and (3) pylorospasm, the so-called "pyloric syndrome," which can be demonstrated, when it exists, by special examinations of the stomach contents alone, is more or less characteristic of "juxtapyloric ulcer"; but the dangers of passing the stomach tube in patients with either gastric or duodenal ulcer should not be underestimated.

The examination of the feces for occult blood after three days of hemoglobin-free diet is a valuable technical method, but the absence of blood does not exclude ulcer; most ulcer patients that show occult blood in the feces can be made occult blood free by a few days of appropriate medical therapy. An anemia of the secondary type with marked reduction of the hemoglobin content of the blood may give the clue to repeated small hemorrhages from ulcer.

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The so-called premonitory signs of perforation of an ulcer (feeling of bloating, feeling of intestinal blockage, symptoms of localized peritonitis) should be kept in mind, but experience shows that they only rarely are, in themselves, sufficiently distinctive to serve as prophylactic guides. Too often the excruciating pain and collapse of perforation occur unannounced. The symptoms of "concealed perforation" and of "organ penetration" are difficult of interpretation, certainly without roentgen-ray control.

Roentgenologic studies are, of course, of the utmost importance in confirming and extending the diagnostic data in ulcer. They are dealt with by other speakers in this symposium. But reliance is to be placed on roentgen-ray reports only when they emanate from competent roentgenologists. Every internist has learned to be on his guard against the misleading data supplied by inexpert roentgen-ray observers. Any technician can make plates or roentgenoscopic examinations, but adequate interpretation of what is seen in plates and on the screen is not every man's métier.

THERAPY

General practitioners and consulting internists see ulcers in the earlier stages and more of the milder cases than do the surgeons, whose experience is largely confined to severer cases, later stages, and complications. It is, therefore, easy to understand the difference in the attitude of these two groups with regard to medical therapy and surgical therapy, respectively. As knowledge has grown and as experiences have accumulated, the indications for medical treatment on the one hand and for surgical intervention on the other have become even more precise, and opinions in medical and surgical circles are gradually coming into accord.

All internists now concede that when complications occur that seriously threaten life, surgery should not be delayed. Thus, in cases of perforation (or of threatened perforation), of recurring severe hemorrhage, of organic stenosis, of complicating perigastritis or periduodenitis with adhesions, and of the severer sequelae generally, there can be no question of the necessity of prompt surgical intervention. And in cases in which removal of focal infections combined with well planned and well conducted medical therapy has failed to relieve the symptoms, to prevent frequent recurrences, or to restore a satisfactory state of nutrition, surgical aid should be invoked.

On the other hand, most internists and, I believe, many surgeons favor a fair trial of the more conservative forms of therapy in cases other than those just referred to, and especially in all uncomplicated cases, with the aim (1) of relieving the symptoms, (2) of preventing the progress and of promoting the healing of the ulcer or ulcers present, and (3) of removing as far as possible conditions that might be responsible for the development of new ulcers.

Time will not permit of a discussion of the details of such conservative therapy; only the main principles can be mentioned. The measures to be applied are mainly of a protective nature. Not alone the ulcer should be shielded; the organism as a whole should be guarded from injuries. Hence, diet, physical and psychic rest, and the removal of toxic and infectious influences are the chief means to be employed; foci of infection within the abdomen as well as extra-abdominal foci should receive due consideration.

In planning the dietary, three fundamental features should be borne in mind: (1) the food should be mechanically nonirritating; (2) it should be so chosen and administered as not to increase the hydrochloric acid content of the stomach juice and not to favor hypersecretion, and (3) the food given, while relatively small in volume, should be adequately varied and of a caloric value sufficient to restore and maintain a normal state of nutrition.

Many dietaries have been recommended, but not a few of them deviate from the fundamental requirements just referred to; if used, they should be modified so as to conform to them. Rigid schemes for universal application in ulcer cases are better avoided; the dietary should be individualized to meet each patient's special needs. Any one with a fair knowledge of dietetics should be able to plan a well-balanced diet with no coarse constituents, poor in salt, condiments and extractives, and containing an adequate amount of protein and vitamins, and as much of the calory-rich carbohydrates and fats as may be needed gradually to increase or diminish the body weight to its calculated ideal. Alcohol, tobacco and strong coffee or tea should be interdicted Hypersecretion can be combated by making the meals small, with intervals of two hours between them.

At the beginning of treatment, rest should be enjoined; there should be a short period of complete digestive rest and a longer period of total bodily rest (in bed) with protection from all disturbing psychic influences. But milder cases do not require a prolonged period of absolute rest; indeed, the tendency at present, the result of war experience, is to change to an ambulatory regimen much earlier than was formerly thought permissible. Chronic ulcers are not healed in a month or six weeks, even if a patient remains quietly in bed for that length of time. The abolition of symptoms is by no means synonymous with the healing of the ulcer; symptoms can be made to disappear quickly, but epithelization of the surface of an ulcer and healing in its depths with scarring are very long and tedious processes. It is therefore impracticable to keep peptic ulcer patients at rest until the lesions are healed; but a short period of rest at the beginning of treatment is decidedly advantageous

Drugs have their place in ulcer therapy, but their value has been overestimated and the amounts used have been excessive Particularly is this true of alkalis, the free and reckless use of which may be attended by dangers of intoxication. Remedies for the alleviation of spasm (belladonna, hyoscyamus, papaverin, phenobarbital) may be given in small but frequently repeated doses. Cautious intravenous injection of foreign proteins have recently been highly vaunted for the speedy alleviation of ulcer symptoms, and would seem worthy of further testing. Pain, vomiting and hemorrhage may require special symptomatic treatment for their control, but are usually easily and quickly amenable.

After the symptoms have been relieved and a normal state of nutrition has been restored, the patient should be kept permanently, that is, for the rest of his life, on a protective regimen, the diet, work and recreation being arranged in conformity with this, while the bodily and mental health generally are kept at as high a level as possible. This advice would seem to be valid even for patients who have resorted to surgical intervention. Might not surgical results in cases of peptic ulcer be far better than they are, if, after operation, the patients were always closely supervised and hygienically directed, according to the principles of medical therapy?

Dilatation of the Heart.—Pure hypertrophy of the heart is of rare occurrence, and it does not produce sufficient enlargement of the heart to be recognized by physical examination. Increase in size of the heart is the result of dilatation of the cardiac chambers, a condition in which the heart contains a much larger amount of blood than normal at the end of systole One reads in the older textbooks on pathology of a concentric hypertrophy, that is, an hypertrophy without dilatation of the cavities, but it is doubtful whether this ever occurs In all the cases of hypertrophy of the heart that the student will study in the clinic, the hypertrophy will be combined with dilatation An increase in the unit volume of blood received in diastole and expelled during systole does not cause a sufficient increase in the size of the heart to be recognized clinically (Straub). In violent exercise the systolic output of blood is greatly augmented, and more blood enters the ventricle during each diastole than occurs in any form of valvular heart disease, no matter how severe the valvular defect may be—Pratt, J H, and Bushnell, G E: Physical Diagnosis of Diseases of the Chest, Philadelphia, W B Saunders Company, 1925

GASTRIC AND DUODENAL ROENTGEN-RAY FINDINGS AFTER OPERATION [*]

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BATTLE CREEK, MICH

My purpose in this communication is to set forth briefly the objectives to be attained by roentgen-ray examination after gastric and duodenal operations, the technic of such examination and some details of the principal findings.

One of the most successful of stomach operations is gastro-enterostomy In the great majority of cases, it gives brilliant results; nevertheless, every physician having occasion to treat or examine a large gastro-intestinal clientele sees a considerable number of gastro-enterostomized persons who complain of more or less serious postoperative disturbance Naturally, only the dissatisfied patients return to the clinician, and the internist who sees a considerable number of this class is apt to feel an unjustified lack of confidence in the operation The foregoing is true, more or less, of all the different forms of operation involving an anastomosis between the stomach and the intestine, as well as the various plastic operations for modification of the pylorus and resection of gastric tumors and gastric and duodenal ulcers

In 1915, before the surgical section of this association, I [1] presented some roentgen-ray studies on patients who had been subjected to various gastric and intestinal operations Prior to that date, the outstanding contributions on this subject were by Cannon and Blake, Guibe,[2] Hartel,[3] Outland, Skinner and Clendening,[4] (1913), Hartmann,[5] Cohn [6] and Barsony [7] (1914). In 1915, Carman and Balfour [8] also presented their classical study on gastrojejunal ulcers, which included very interesting and helpful roentgenologic findings Later, gastroduodenal postoperative roentgen-ray studies have been published by Zollschau,[9] Butsch,[10] Eusterman,[11] Pirie,[12] von Bergmann,[13] Krause,[14] Goetze,[15] Christophe,[16] H. Béclère,[17] Savignac,[18] Hellmer [19] and Moreau and Murdock.[20]

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[4] Outland, J H, Skinner, E H, and Clendening, L: A Study of the Mechanism of the Stomach After Gastro Enterostomy by Means of the X-Ray, Surg, Gynec & Obst **17**: 175 183, 1913

[5] Hartmann, H Function of the Gastro Enterostomy Opening in Cases of Permeable Pylorus, Ann Surg **59**: 832 840, 1914

[6] Cohn, M Die Gastrostomie im Rontgenbild, Fortschr a d Geb d Röntgenstrahlen **22**: 377, 1914 1915

[7] Barsony, T Beitrage zur Diagnostik des postoperativen jejunalen und Anastomosenulkus, Wiener klin Wchnschr **2**: 1058 1062, 1914

[8] Carman, R D, and Balfour, D C Gastrojejunal Ulcers—Their Roentgenologic Aspects, J A M A **65**: 227 232 (July 17) 1915

[9] Zollschau, I Zum röntgenologischen Nachweis des Ulcus pepticum jejuni, Deutsch med Wchnschr **44**: 177 179, 1918

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[11] Eusterman, G B Clinical Study of Eighty Three Gastrojejunal Ulcers, Minnesota Med **11**: 517 525 (Nov) 1920

[12] Pirie, A. H Failures After Gastro-Enterostomy Turned to Success by the Knowledge Furnished by X Ray Examination, Am J Roentgenol **9**: 358 359 (June) 1922

[13] Von Bergmann Fortschr a d Geb d Rontgenstrahlen **30**, No. 1, 1922

[14] Krause. Fortschr a d Geb d Röntgenstrahlen **29**: 641, 1922

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VALUE OF POSTOPERATIVE ROENTGEN-RAY STUDIES

Postoperative studies serve various useful purposes:

(*a*) With the modern facilities for bedside roentgen-ray studies so developed that the making of a postoperative roentgenogram need give the patient no discomfort whatever, a roentgen-ray study may be made immediately after an operation in which untoward symptoms that have to do with the mechanics of the stomach develop.

(*b*) Routine postoperative studies shortly after operation, say on the fifteenth to the twenty-fifth day, afford a valuable check to the surgeon and are useful for research.

(*c*) At any time during the first six months after operation, light on new or persisting symptoms may be afforded.

(*d*) Examinations made long after the operation in patient's doing well from a clinical standpoint aid in determining which are the more useful types of gastric and duodenal operations.

The clinical history and, if possible, the details of the operative procedure should be in the hands of the roentgen-ray examiner. It is just as impossible to base one's diagnosis on the roentgen-ray findings alone in the case that has come to operation as in the one that has not. There is, in fact, in the case in which operation has been performed the additional factor of probable postoperative adhesions to complicate the interpretation of the roentgen-ray findings. At all events, examination of the function of the stomach as seen roentgenologically is only a part of the total clinical examination.

TECHNIC OF THE ROENTGEN-RAY STUDY

The examination should be comprehensive, the patient being studied in the frontal and various oblique positions, both erect and lying. In some cases, the ingenuity of the examiner will be taxed to get the patient into a suitable position to study the anastomotic stoma. Sometimes it will be necessary, by the palpating hand or wooden spoon, to lift up the lower border of the stomach during the screen study. The Trendelenburg position may be helpful in an occasional case. The first part of the opaque meal, consisting of from 2 to 4 ounces (62 to 125 gm.) of barium-water mixture, should be administered while the patient is standing in the vertical fluoroscope. With a small quantity of this type of opaque medium, palpation under the fluoroscopic screen is likely to be more fruitful than with the full meal, the administration of which should be deferred until the fluoroscopic studies are almost completed. Observations in various attitudes in the horizontal position should next be recorded. The fluoroscopic study is the most essential part of a postoperative roentgen-ray investigation, but as many films should be exposed as may be necessary to make permanent record of fluoroscopic findings or to give a better view of fine points of detail. Frequent observations are necessary, preferably once an hour, until the stomach has been emptied. Pirie's results show how valuable may be such a careful and prolonged postoperative fluoroscopic study as an aid in the clinical management of cases after operation.

The examiner should remark on the size of the stomach when filled with the usual meal; the direction of the long axis of the stomach (a line adjoining the cardia with the stoma); the vigor and direction of peristaltic waves; the path chosen by the opaque material in leaving the stomach, whether by pylorus (either spontaneously or under pressure of the palpating hand) or by the new opening; whether any of the material backs into the short-circuited loops; how long it takes the stomach to empty; whether the larger part passes out within the first few minutes, three hours or more being required for the remainder, or whether the emptying is more regularly performed. Are there any niches or pockets that remain filled after most of the meal has passed? What is the relation of points of localized pressure pain to the stoma? Is the stomach as mobile as it should be? Are there any filling defects suggestive of recurrent carcinoma?

For the urgent case studied at once after operation when, if it occurs at all, symptoms of gastric stasis become evident, usually within the first forty-eight hours, I do not hesitate to administer from 10 to 20 gm. of barium sulphate stirred in water, which may be given to the patient in spoonful doses or through a duodenal tube. After from one to two hours, by means of the draw sheet, the patient can be lifted enough to place the roentgen-ray film beneath him, and with a bedside roentgen-ray equipment an anteroposterior roentgenogram of the stomach can be made without removing him from his bed. Thus, within from one to two hours, one may obtain positive evidence for or against acute gastric obstruction.

In my surgical work, all patients for gastric and duodenal operation come to the operating table with a duodenal tube already in place. By leaving off the metal tip, there is rarely any difficulty in passing such a tube through the nose, or if already passed by mouth, it is a simple matter to bring the upper end back through the nose by the aid of a small catheter. This tube, useful for keeping the stomach empty and for lavage when indicated, is also useful for the introduction of the opaque material in those cases in which it seems desirable to make a roentgen-ray study from one to two days immediately after a gastro-duodenal operation. The duodenal tube should be removed as soon as gastric lavage through the tube shows the stomach to be emptying itself.

In the postconvalescent study of patients subjected to the ordinary short-loop posterior gastro-jejunostomy, with rare exceptions, the opaque material begins at once to pass through the stoma even before the stomach is filled. In a series of seventy-two gastro-enterostomies, barium was seen to pass through the stoma in seventy patients, and in one of the remainder, the preoperative subjective symptoms had been entirely relieved and weight gained, although the gastric clearance was still slow. In a series of sixty-five cases, some barium was seen to pass through the pylorus in fifty-two, but in twenty of the fifty-two cases, pressure of the palpating hand was necessary to pass the barium through the pylorus. The proportion passing through the pylorus represented only a fraction of the total meal.

The stoma should lie at or near the lowest point of the stomach when the patient is in the erect position. When the stoma is too high, the stomach empties quickly until the level of the stoma is reached, after which the gastric evacuation is much too slow. In a series of cases in which the gastro-enterostomy opening was made exactly on the greater curvature, the average emptying time of the stomach was practically the same as in an equal number of cases in which the stoma was placed conveniently near the greater curvature but without any special effort to put it exactly on the greater curvature.

Béclère[17] believes that the stoma should be located at the lowest point of the stomach very near the pylorus. The contours of the operative zone should be somewhat retracted, but they should be regular. The evacuation occurs by jets, the total duration of the passage of a bolus, or jet, being about thirty seconds, an interval of about three minutes occurring between jets. His paper is accompanied by roentgenograms illustrating the passage of one of these jets. His observations agree entirely with the work of Cannon and Blake and with the observations that I published ten years ago.

Hartmann and his followers urge the necessity of placing the stoma as near the pylorus as possible.

Goetze sutured small metal beads on the inside of the stomach at the upper and lower end of the anastomosis so that they remained visible for weeks. He was thus able to observe that the anastomosis usually lies higher than was intended even when the surgeon thinks he has made it at the lowest point. He assumes that, in drawing the posterior wall of the stomach forward out of the slit in the mesocolon, the pyloric part frequently remains fixed on account of posterior perigastritis, while the higher part of the body which lies more to the left follows without resistance. If the anastomosis really lies at the lowest point, there is rapid precipitate emptying, and a tendency of the stomach to grow smaller secondarily. When the pylorus has been occluded at operation by any means other than complete division and suture of the stomach, it usually reopens within a few months, sometimes within a few weeks. But even with the pylorus permeable, the great bulk of the barium meal finds its way through the stoma.

Some have declared that the stomach after operation becomes notably smaller than before operation. This is doubtful. In the postoperative examination, evacuation usually begins to occur before the stomach is filled, and this gives the impression of diminished size. Furthermore, since the duodenojejunal angle is more or less fixed, the lower border of the stomach may be held in a higher position than usual when a very short loop of jejunum is employed for the anastomosis, and this adds to the false impression of diminished size of the stomach because the lower border is held at a higher level.

Peristalsis is distinctly less marked than in the nonoperated stomach. Sometimes it is plainly seen in patients who are symptomless. There is no disturbing dilatation of the jejunum below the stoma, and if the gastro-enterostomy is functioning normally, the duodenum is not dilated. Study of the stoma may sometimes reveal adhesions, but its appearance is symmetrical, rarely deformed. There is usually a slight retention of barium in the jejunum just opposite the stoma. This may have to do with the comparative frequency of gastrojejunal ulcer following gastrojejunostomy.

For many years, gastro-enterostomy was looked on as a drainage operation; but Cannon's classic studies on the movement of food after gastro-enterostomy indicate that a purposive control of the new opening is sooner or later established. Goetze holds that fundamental principles in gastric surgery demand that the postoperative form and function will correspond as nearly as possible to those of the normal stomach. In 1915, I declared my belief that in normally functioning cases the passage of material from the stomach occurs very much as in the normal patient who has not been operated on. With the barium-water mixture, the very first swallow of opaque material usually finds its way at once into the jejunum; then there is a certain brief delay after which the passage of food boluses is irregularly intermittent, and the total time required for the clearance of the barium meal averages from three to four and one-half or five hours, depending somewhat on the nature and quantity of the opaque meal.

The average emptying time in sixty gastro-enterostomies that clinically gave perfectly satisfactory results was three hours and forty minutes, a barium meal consisting of 4 ounces (120 c.c.) of barium-water mixture followed by 10 ounces (295 c.c.) of a mixture of barium suspended in buttermilk or warm malted milk being employed. The average emptying time of fifteen perfectly satisfactory cases examined within three weeks of the day of gastro-enterostomy was four hours and twelve minutes. The average emptying time of another series of fifteen satisfactory cases in which operation had been performed more than three years before the postoperative roentgen-ray test was four hours and eight minutes.

Cannon and Blake found that when pyloroplasty had been performed, rapid exit of food from the stomach was prevented by the formation of a rhythmically contracting constriction ring in the duodenum. They believed that this activity replaced in part the function of the pylorus. I have observed evidence of this phenomenon in about one half of the cases in which a Finney or other pyloroplastic sphincter-destroying operation has been done. It is interesting to note that an analogous phenomenon was seen in a fair percentage of cases in which the ordinary gastrojejunostomy has been performed. It is my impression that the surgeon need not fear making the gastro-enterostomy opening too large; the danger is that the opening may prove too small. After all, within reasonable bounds, the size of the gastro-enterostomy opening depends on the caliber of the jejunum below the opening and not on the diameter of the opening itself. Hence, it is better that any error on the part of the surgeon should be in the direction of a larger rather than a smaller opening. In a number of patients clinically well and entirely satisfied with their operation, in whom ordinary gastrojejunostomy has been performed, it has seemed to me clear that a sort of sphincter action is established in the jejunum below the stoma. This was at first interpreted as a spastic contraction of the circular muscle of the jejunum, but in the light of Cannon's studies and many years of personal observation of these cases in the fluoroscopic room, it seems reasonable to conclude that this contraction ring in the jejunum is purposive, serving somewhat as a sphincter. Kocher, many years ago, stated that the gastro-enterostomy developed a sphincter action and actually underwent rhythmic contractions. Later writers have felt that these contractions were due to temporary alterations in the form or angle of the stoma incident to the passage of peristaltic waves in the stomach.

There is no longer any question of an autonomous sphincter capable of coordination. It never completely suffices for active powerful closure even when most favorably situated in the antrum whose stronger musculature, as mentioned by Hartmann, produces an intragastric pressure from four to eight times greater than that obtaining in the body of the stomach. Under pathologic conditions, on the other hand, the new stoma may contract completely and produce total occlusion, if its lumen was not too large in the beginning. But in the latter case, the resistance offered is no longer furnished by the anastomotic ring but by the cross section of the spastically contracted jejunum.

These observations regarding establishment of a sphincteric control at the stoma are strengthened by roentgen-ray studies on patients operated on many years ago. A man in whom, twenty-three years ago, posterior gastro-enterostomy for cicatricial pyloric obstruction was performed, with the use of a button for intestinal anastomosis, recently offered himself for examination although he considered himself in perfect health. At present, the roentgen-ray study shows the stomach, when filled, to be normal in size and shape. In the erect position, the stoma was located vertically below the cardiac orifice. Peristaltic waves were seen on the lesser curvature, commencing in the usual position and passing through to the pylorus. No peristaltic waves were seen on the greater curvature above the stoma, but were slightly in evidence between the stoma and the pylorus. A minute or two elapsed before opaque material began to leave the stomach. Some barium was seen to go through the pylorus, and on manipulation the duodenal bulb filled fairly well. Approximately two-thirds of the material passed through the stoma. There was no dilatation or reverse peristalsis in the duodenum. The stomach required nearly five hours for emptying our standard opaque meal.

De Luna[21] also reported a case in which, twenty-three years before, anterior gastro-enterostomy was performed. The patient had had no gastric or intestinal trouble at any time since. He still complained of the necessity of not eating too much at a time, and on rare occasions, vomited small quantities of bile. Roentgenologic study showed the gastric wall supple, the stoma, situated at the lowest point, functioning in a regular and rhythmic manner. The boluses of food in the upper intestinal loop were distinctly held there a certain length of time.

Christophe[16] has recently reported on the final results in some cases of Hartmann.[5] This surgeon is an advocate of placing the stoma as near as possible to the pylorus with the idea of utilizing the pressure of evacuation of the pyloric antrum, which is from four to eight times greater than in the vertical portion of the stomach. In the cases reported, operation was performed from four to eighteen years ago. He found that the barium hardly reaches the stomach before it begins to leave by the new opening. There is in some instances a situation in which the atonic stomach empties through a wide open orifice through which the barium runs passively. In many cases, but not in all, the rush of barium through the stoma stopped when stomach contractions began, gastric clearance then proceeding by ejaculations more or less rhythmic. It is more logical to admit that the strong contractions of the musculature of the stomach can in certain cases periodically close the opening. Härtel also takes this view. In fact, it seems that the gastric ejaculation precedes by a little the passage of the peristaltic wave.

One can understand easily enough how a complete relaxation of the empty stomach leaves the stoma wide open. The first swallow of barium is gobbled up, and in some instances of marked atonicity (the so-called dumping stomach), the barium continues to rush out through the new opening; but as soon as gastric tonus is resumed and there reappear moderate tonic contractions of the muscular fibers, the borders of the mouth are hugged together. It is quite possible and probable that there is a definite relation between the direction of section of the muscular fibers and the permeability of the stoma. The more or less obliquity of the incision in the stomach wall may explain the apparent differences in size of the anastomotic mouth at the moment of passage of a food bolus. There are, it must be admitted, a certain number of cases in which periodicity of evacuation is not observed and the stoma is open all the time.

Normal cases do not show a deformity of the gastric outline due to the operation of gastro-enterostomy, nor is the gastric mobility seriously modified by the operation. There do not exist incisures or spasms due to the anastomosis.

Summarizing, then, the gastro-enterostomized stomach that is functioning satisfactorily, the patient being symptom free, exhibits the following characteristics: (*a*) normal form of stomach; (*b*) no deformities, serrations, incisures or filling defects due to the operation; (*c*) emptying time exceedingly variable, from one to five hours, more often from three to five hours; (*d*) unless the pylorus has been closed by stenosis or by operation, passage through the pylorus of at least some of the barium; (*e*) passage through the stoma usually by jets more or less rhythmically. Gastro-enterostomy, then, is not by any means simply a drainage operation.

GASTROJEJUNAL ULCER AND GASTROCOLIC FISTULA

The most important pathologic finding in gastro-enterostomized stomachs is gastrojejunal ulcer and its occasional sequel, gastrojejuno-colic fistula.

The one direct sign of a gastrojejunal ulcer is the evidence of an ulcer crater in relation to the stoma. One is able to see this only very rarely. More often there is a deformity about the stoma, narrowing and irregularity of the jejunum, and evidence of fixation at the site of the anastomosis, all of which are in contrast to the lack of deformity and perfect pliability of the jejunal walls and mobility of the stomach at the site of the anastomosis found in normal cases. Indirectly, dilatation of the stomach and duodenum, delay in gastric clearance, and unusual activity of the gastric musculature, manifested either by spasm or by hyperperistalsis, suggest the presence of an anastomotic ulcer. There is a characteristic general excitation of the stomach and upper bowel recognizable by the experienced roentgenologist. Motor irritation may be suggested by: (*a*) extreme, boardlike contractions of the stomach; (*b*) serration of the greater curvature; (*c*) spasm of the new stomach outlet sometimes amounting to a total long continued occlusion of the anastomosis, and (*d*) spastic contractions of the adjacent jejunum, recognizable by the fact that the first bolus of barium that passes is followed immediately by an occlusion that is spastic in nature and may or may not result in a prolonged gastric clearance. In other cases, there is often no disturbance in gastric mobility. The coincidence of a point of pain on pressure with the gastro-enterostomy opening is highly suggestive. When, in addition to other suspicious symptoms, there is pain at the site of the anastomosis that can be localized only by roentgen-ray examination, operation is indicated on account of the suspicion of jejunal ulcer.

Gastrojejuno-colic fistula is a relatively rare complication. There are clinically three principal symptoms: (1) diarrheal stools containing food ingested shortly before the bowel evacuation; (2) vomiting, frequently containing traces of fecal matter, and sometimes accompanied by eructations of fecal odor; (3) rapid cachexia accompanied by the preceding signs. Here roentgenologic study renders great service in proving the gastrocolic communication, either by employing the opaque meal or the enema, or by insufflation, repeated as often as is necessary to observe the following signs:

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[21] De Luna, C.: Arch. d. mal. de l'app digestif. **12**: *981, 1923.*

1. The passage of opaque material into the left colon immediately after ingestion of the meal, the right colon usually remaining empty.
2. The possibility of causing opaque material from the stomach to pass into the colon, and vice versa, by manual palpation under the fluoroscopic screen.
3. The presence of opaque material in the stomach after the barium enema.

The screen examination should also help us to differentiate between the two greatest causes of gastrocolic fistula—cancer and ulcer of the stomach. Of those methods of study, the enema is the more conclusive, for if the contrasting medium is given by mouth a possible bolus passing into the colon may be disturbed or hidden by filling of the small intestine at the same time.

It is apparent from our postoperative studies that gastrojejunal ulcer occurs more frequently following simple gastro-enterostomy, and especially anterior gastro-enterostomy, than after partial gastrectomies involving resection of the ulcer-bearing zone of the stomach.

RESULTS AFTER GASTRIC RESECTIONS

The immediate postoperative results in all forms of gastro-intestinal anastomosis following partial gastrectomy have been good. In no instance have we failed to find the barium passing readily into the small intestine. Here, in contrast to the case with gastro-enterostomy, the emptying time of the stomach is usually very much reduced, depending somewhat on the proportion of the gastric wall removed at the operation. Of the patients that have come to us years afterward for postoperative study, we have made observations on those subjected to a Polya operation, either postcolic or antecolic, and those who have had a Billroth operation after the first or second method. The patient who returns with severe symptoms after a stomach operation, excluding those who have been operated on for carcinoma, is not the one for whom resection has been performed but much more frequently the one who has had a gastro-enterostomy. I have records of a number of patients perfectly satisfied and clinically well who were subjected to partial gastrectomy several years ago. In a small series of patients operated on by the Polya method for antral ulcers from five to ten years ago, the cardiac end of the stomach was found to be normal, peristaltic waves shallow, and barium starting freely into the small intestine. There was no evidence of dilatation in the upper loops of the small bowel and no irregularities of the stomach around the pyloric end. In spite of the apparent ease with which the material passed into the jejunum, the average emptying time of the stomach was four and one-half hours.

Following a Billroth I operation, there is often precipitate emptying of the stomach. Generally they are steeply oblique, wedge-shaped stomachs with an emptying time of from fifteen minutes to one hour; but longer delays are seen, and it is in these that one observes slight peristaltic waves. This precipitate emptying is sometimes slowed by a narrowness of the anastomotic opening, which is just at the limit of what is permissible.

Billroth II stomachs show rather long shadows hanging well to the left of the spinal column. When the outlet is at the deepest point of the remaining stomach, there is a great tendency to precipitate emptying. There was no noteworthy peristalsis in the cases studied.

ANNULAR RESECTION

After annular resection, there is observed a diminutive stomach usually situated to the left of the spinal column. The pylorus lies in front of or even to the left of the vertebral bodies. That portion of the stomach shadow below the annular suture line is shrunken to the point of being almost nonexistent. The duodenal bulb and the first portion of the duodenum are strongly drawn to the left. In the cases of this type, there has been a midgastric constriction, somewhat serrated, situated on the old line of suture. This constriction is marked by an incisure, deeper on the greater curvature than on the lesser. This deformity is organic and persists in spite of antispasmodics. It is seen from the time the barium enters the stomach and is exaggerated at the moment of the passage of peristaltic waves, the exaggeration being more marked on the greater than on the lesser curvature. There is often a dilatation of the upper sac of the stomach visible on its greater curvature—apparently an excess of gastric wall on the greater curvature of the superior segment. The emptying time of the stomach after annular resection is from three to five hours. The barium collects in the upper segment, but passes so quickly through the lower half that it is difficult to study its walls. The peristaltic waves are shallow but have been seen starting above the field of operation and proceeding to the pylorus on both curvatures.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KARSNER, CARMAN, BARKER AND CASE

DR. LEWIS G. COLE, New York: Concerning the relative incidence of prepyloric and postpyloric ulcers, it will be more firmly established by roentgen rays than by surgery and necropsies, especially as in roentgen-ray examination the sphincter forms the landmark from which to survey all this region of the bowel. Constitutional and conditional factors concerning the causes and mode of development of peptic ulcers include habitus, diathesis, anomaly, endocrine disharmony, periodicity, acidity, infection, strain, physical and psychic, and others with selective affinities for special tissues. The great number makes it difficult to select the responsible one. Bloating, burning, gas, eructations and constipation, flatulence, are all indications of rumblings in the gastro-intestinal tract. Patients may have hunger without pain, or pain without hunger. There is no history that is typical of either gastric or duodenal ulcer. The statement that "the necessity of caution in evaluation of the anamnesis is therefore obvious" is rhetorically elegant but only mildly emphatic when one considers the facts concerning the value of symptoms. General physical examination is helpful in ruling out certain conditions that simulate ulcers, but the findings are unreliable. We are all very grateful to Dr. Barker for his remarks concerning the misleading reports of inexpert roentgen-ray observers, and we should seek to help our fellow roentgenologists. I wonder whether the percentage of inaccurate diagnoses on gastric ulcers is greater from the source of the inexpert roentgenologist than it is from the inexpert clinician, when the latter's evidence is based entirely on evidence which he does not take from the roentgenologist. I wonder whether the inexperienced roentgenologist would not hit a higher average than even the expert clinician. Dr. Barker says that general practitioners and internists see ulcers in their earliest stages. When, where, and how do they see them? When did they see the last ulcer in its early stage without roentgenogram or without the surgeon's help? No doubt ulcers are readily divided into two groups—surgical and medical; and perhaps from a clinical standpoint all uncomplicated ulcers should first be treated medically. Dr. Barker's conservative, rational and well balanced common sense diet with early ambulatory treatment seems to me the sheet anchor for medical therapy. By a complete and thorough roentgen-ray examination, preferably serial roentgenology, repeated as often as necessary, one can determine the incidence of prepyloric and postpyloric ulcer; he may derive much help in undestanding etiology, and very definite data concerning the pathogenesis, progress or retrogression of the ulcer.

Dr. J. Shelton Horsley, Richmond, Va.: As Dr. Barker said, surgeons and internists are getting closer together, and, from the standpoint of a surgeon, I most heartily endorse the general principles of the treatment of peptic ulcer that he has laid down. The patient always needs medical treatment, at least medical postoperative treatment, in those cases in which operation is done, and undoubtedly many early peptic ulcers are cured by medical treatment alone. The question of the proper technic is vital. Many of the patients treated by a gastro-enterostomy do poorly, as Dr. Case has said. One reason why we do not get more satisfactory statistics is that the gastro-enterostomized stomach is treated as an entity, and the occasion for the gastro-enterostomy is often not considered. It might be done for inoperable cancer, or for a small duodenal ulcer that does not produce any marked spasm. Between these extremes there lie the infiltrating ulcer, the ulcer, the adhesions and stenosis. We should not attempt to twist any one operation to make it fit all the various pathologic gastric conditions. There seems, too, to be a tendency toward very radical surgery in all these ulcers, and that is a swing of the pendulum in the other direction. If a gastro-enterostomy as a routine operation does not cure, then what may we do? Not study the cases carefully from the standpoint of physiology and pathology, but just cut the stomach out and have it over and done with. That seems to me an unscientific attitude if it is taken as a routine measure. There are, of course, other surgical measures, such as pyloroplasty, which have a very definite field. Carlson, in reviewing gastric secretion in *Physiological Reviews*, January, 1923, says that there is no such thing as gastric hyperacidity and that normally there may be 0.5 per cent. of hydrochloric acid. He thinks that gastric juice has been too much glorified. Great variations in gastric juice may occur without materially affecting the health. The specific hormone gastrin, which Edkins is supposed to have discovered about twenty years ago, is now discredited by Carlson and others. But there is something in food that excites a secretion of gastric juice. It is not solely mechanical because sand, while causing a mucous secretion, does not produce gastric juice. A spasm that causes obstruction makes the food stay in contact with the stomach longer than normally. Hyperperistalsis overcomes the obstruction for a while, but after the hyperperistalsis has exhausted itself still some food is retained, and the presence of this food excites an excessive amount of gastric juice. What would you do if there was an ulcer in the rectum just above the sphincter which caused a spastic contraction and pain and dammed back fecal contents? You would give physiologic rest by stretching or dividing the sphincter, and cauterize or excise the ulcer. So we can in many cases divide the sphincter and the pyloric canal by an incision, excise the ulcer and relieve the spasm. Of course, all foci of infection should be removed. Where there is recurrence of an ulcer after pyloroplasty or when the ulcer is gastric and even moderately extensive, a partial gastrectomy should be done. But I think that if I had a small duodenal ulcer I would rather have a milder operation with a restoration of normal physiologic conditions and take a slight chance on a more radical operation later on, than to have the radical gastrectomy done at first.

Dr. W. H. Stewart, New York: I should like to issue a word of warning as to depending on bismuth in water or even in buttermilk as indicating the time of emptying after gastro-enterostomy. I have had one or two cases in which the patient manifested symptoms of a reclosure of the stoma, and with the ordinary bismuth in water or bismuth in buttermilk, the time of emptying was about three and a half hours, which we considered practically normal. Still, the symptoms continued. The surgeon found that the stoma had contracted down to a very marked extent and reproduced some of the old symptoms. From that time on we have made our tests with meal. As Dr. Vici said some years ago, when surgery came in all bets were off, and I do not know of anything that it applies to so well as it does to the gastro-enterostomy stoma, and I do not believe that anybody can recognize ulceration, a marginal ulcer in much more than 10 or 15 per cent. I hope I do not misunderstand Dr. Case when he said that in normal gastro-enterostomies there was a normal contour. I have examined many gastro-enterostomies and found that the surgical procedure almost always produces a deformity. It produces a puckering, a deformity that is very difficult to differentiate from the ulceration. Another point one has to bear in mind in estimating the emptying time of a gastro-enterostomy is that when the surgeon operates, the patient is lying on his back. When the patient is placed in an erect position, there is a valvelike action from the stomach falling forward, and there is a kinking of the jejunum in such a way that a marked obstruction is produced. I have seen at least three cases of that character in which by holding the stomach up the stoma was relieved of its obstruction.

Dr. I. O. Palefski, New York: I listened to the several papers of this symposium with a great deal of interest, particularly to the paper by Dr. Barker. He presented his subject from a general but practical point of view. What pleased me particularly is his emphasis on the importance of the after-care following the initial medical treatment of ulcer; for it should never be forgotten that the results of any of the procedures in vogue depend on the subsequent enforcement of dietetic restrictions for at least two or three years or even longer. As to the relative merits between the clinical and roentgen-ray findings I cannot agree with Dr. Cole who, in his discussion, attempts to put a damper on the value of clinical examinations. Those, like myself, who employ both clinical and roentgen-ray examinations in almost every case presenting for diagnosis, know from experience that both types of examinations are necessary for a correct diagnosis in the average patient. It is not uncommon to find instances in which the roentgen-ray findings mislead the diagnosis. In duodenal ulcer as well as in diseases of the gallbladder, the clinical findings are indispensable, while in gastric conditions the roentgen-ray findings are more important. It is impossible to accept the results of several roentgenologists as a standard. Of late, a large number of men of limited experience entered this field, and it is here that roentgenology suffers considerably.

Dr. Seale Harris, Birmingham, Ala.: As to the pathogenesis of ulcer, we hear a great deal about the focal infections, and unquestionably they play a very important part; but the recent work of expert observers seems to show that there is something far back of that which lowers resistance of the gastro-intestinal tract, the stomach and duodenum to infection, and those men think that our present diet of white bread, white rice and white sugar, a very excessive carbohydrate diet, has something to do with lowering resistance to these bacterial organisms, for they can find a place in which to thrive. As to the anamnesis in ulcer and to the early diagnosis of ulcer: The Mayo statistics show that ulcers had existed in their patients over a period of about nine years before they came to the Mayo Clinic. Dr. Finney's and Dr. Friedenwald's statistics show that theirs existed about ten years. A study of our patients that came to us for medical treatment showed that they existed about five years, and unquestionably the ulcer should be regarded as a very chronic condition. If we will study our cases, we shall find that long before the patient had the pain, there was nausea, vomiting, vague gastric disturbances of a periodic character.

One thing in the history of ulcers should be considered, and that is the patients who complained of indigestion and vague discomfort of various kinds that came on two and three and four times a year, passing off only to recur again. Periodicity is the important thing in ulcers. As to diet, it is thoroughly unscientific to attempt to make an ulcer diet fit every patient. We should make the condition of the patient, his age, his size, weight and all those things have their proper consideration, as well as the nutritional needs of the patient in making out the ulcer patient's diet, and I am convinced that instead of the high protein diet that most of these routine ulcer diets contain, averaging from 120 to 150 gm. of protein a day, which these patients are given and taught to live on for the rest of their lives, a protein diet of about 60 or 75 gm. is enough for the body to eat, the relatively high fat diet and low carbohydrate diet, and a diet that is righ in vitamins that may be given with the idea of building up resistance to these infections.

Dr. A. E. Barclay, Manchester, England: One point Dr. Carman did not bring out as to the radiographic and actual size of the ulcer. The large craters that we see radiographically are not necessarily the same size as those which the surgeon removes. The ulcer is usually much smaller than we expect. This is due, I believe, to the heaping up of the mucous membrane around the ulcer. My first lesson was an ulcer which I thought was probably about half an inch in diameter, and when the surgeon brought it down to me after operation, it was little more than an eighth of an inch in diameter. The site of the stoma may vary from time to time. On one occasion I told the surgeon that he had placed his stoma too high, and this he denied categorically. I then took it into my head to observe a number of these stomas from day to day, and found that the stoma can move more than an appreciable distance from the lowest point upward on the lesser curvature; i. e., one day the position appears to be good, while on another occasion it appears to be far too high. What the meaning of this is I do not know. Perhaps Dr. Case will tell me. Dr. Carman had some very nice pictures illustrating palpation, a subject on which we are in full agreement as to its value. He showed the heavy shadow of a gloved hand lying in the middle of the illuminated field. But I do not think Dr. Carman does palpate that way. I know I do not myself. The screen should be limited down to a very small field, and the palpating hand should never be within the illuminated area, for there is more than an inch of margin between the edge of the illuminated area and the organ that is being palpated.

Dr. Lewellys F. Barker, Baltimore: The stress laid on predisposition by both Dr. Karsner and Dr. Harris deserves attention. In this connection, the recent reports of the existence of areas of capillary inferiority would seem to be of especial interest and it is just possible that a vascular inferiority in some of these ulcer patients may be the basis of predisposition. What has been said by Drs. Carman, Case and Cole has shown very clearly how important roentgenologic examinations are for the control of clinical work; they aid in diagnosis, and in following the cases after operation they are most useful for the determination of the success or the nonsuccess of the surgical intervention. Some reference was made to the number of mistakes made by clinicians in contrast with those made by roentgenologists. Of course, I had reference rather to mere technicians who are not expert roentgenologists. It is quite true, of course, that an inexpert clinician can make equally bad mistakes. The internist and the general practitioner of today, in his study of gastro-intestinal disturbances, does not, however, limit his study to the anamnesis and the physical examination, but includes also roentgenologic reports. In other words, the clinician has become more or less protected from making mistakes because he wisely associates with him, in his studies, workers in special domains. Dr. Horsley has emphasized the fact that all cases should be treated medically and some of them should be treated surgically. I believe that that is true. The uncomplicated cases certainly deserve a fair trial of medical treatment before operation is resorted to. An operator will secure better results, too, if his patient has been given a preliminary period of medical therapy, and, certainly, after operation, the same precautions that characterize the medical therapy should be observed in all cases. Cures undoubtedly follow medical therapy and surgical therapy, but they are perhaps not quite so numerous as either the medical man or the surgeon is prone to think. We often see an abatement of symptoms or a disappearance of symptoms and a restitution of apparently normal function, but in many instances the ulcer remains unhealed. It is well known that even after operation for ulcer, especially after gastro-enterostomy, the necessity of secondary laparotomy often arises. I have also been impressed with the difficulty patients experience in accommodating themselves to a gastro-enterostomy. I have known many physicians who have gone through gastro-enterostomy operations; they have told me that it took them a long time "to adapt themselves" to the gastro-enterostomy. In case I had to undergo, myself, an operation for ulcer, the kind of operation I should want done would depend on two things: (1) the surgeon who was to perform it, and (2) the local conditions found at operation. If I could choose an expert surgeon, I should leave matters entirely to his judgment; but if I had (because of some emergency) to submit to operation by a surgeon of limited experience, I should want him to do as little as possible "to let me get by." An expert surgeon would, of course, choose the particular operation that he thought would not only relieve the immediate situation but also give me the best chances of permanent freedom from symptoms. Thus, when a severe chronic gastritis is present in association with ulcer, an extensive gastrectomy with removal of the diseased mucous membrane might often be preferable to a gastro-enterostomy.

Dr. James T. Case, Battle Creek, Mich.: Dr. Stewart spoke about the proper type of meal to test the time it takes the stomach to empty. My feeling is that it matters not a great deal what type of meal one uses, provided the same kind is used year after year and it becomes a standard for him. It is not possible for different men to compare the emptying time of the stomach under different conditions, but one man can compare various cases of different types under the conditions under which he works. As for the variation in position of stoma suggested by Dr. Barclay, that is a very interesting suggestion to me and one that I shall study. It had not occurred to me before. I want to call attention to a paper by Dr. A. H. Pirie which appeared a couple of years ago regarding the value of postoperative roentgen-ray studies in aiding one to accommodate oneself to gastro-enterostomy. I refer to it in my paper but had not time to read it. One important question I did not bring up at all in my paper. What is the significance of a persisting deformity of the duodenum following an operation? We hear a good deal about the disappearance of ulcer roentgen-ray signs in the stomach as a proof that the medical treatment of gastric or duodenal ulcer has cured the ulcer, and there are appearing in the literature publications, including publications of roentgenograms, where these roentgenograms are being used to prove that the ulcer had been cured, because in the pretreatment roentgenogram there was a crater and in the later roentgenograms there was not a crater. What about the duodenum? We consider a persisting deformity of the duodenum as one of the characteristic signs of ulcer, but I find it very common also in the duodenum after operation, even years after operation when the patient has no symptoms at all of duodenal ulcer. Some of these on which I have reported are patients who live somewhere near me who have very kindly come in to submit to restudy just so that I could get some data. I do not know how to explain why in apparently cured cases the duodenal ulcer deformity persists long after operation. I hope some future writer will tell us that.

Plague Prevention.—Once plague infection is present in a given city or community, the fight against the disease resolves itself into a fight against the rat or other rodent concerned in its spread. In pneumonic outbreaks the human cases, of course, must be separated promptly from the noninfected portion of the population.—*Pub. Health Rep.* **40**:53 (Jan.) 1925.

MEAT INSPECTION AS A PUBLIC HEALTH MEASURE *

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The last decade has greatly enriched the science of nutrition, but two achievements stand out most prominently. They are the discovery of vitamins and the proof that not all proteins are of equal nutritive value; that some, particularly most vegetable proteins, are incomplete, while most animal proteins are complete in that they contain the components necessary for growth, repair and replacement. A number of diseases whose etiology was heretofore unknown have been definitely proved to be caused by lack of vitamins, and of late, considerable evidence has been brought forth to prove that resistance to disease, particularly infection, and even reproduction, may be dependent on vitamins and the quality of proteins, or both.

These facts have collectively been called "the newer knowledge of nutrition," and they prove that there is more to food than calories. The proper selection of foods both in quality and in quantity is not merely an individual problem but a public health question of great magnitude. The last decade also brought forth new ideas regarding the hygiene of food and the relation of food to disease. The older teachings that food per se can cause disease after it is assimilated has been largely if not entirely discarded. Many diseases, particularly the various forms of so-called rheumatism, were for a long time thought to be caused by foods and were therefore treated dietetically, but are now known to be caused by infection.

Food poisoning, looked on for a long time as due to intoxication with products of food cleavage, either bacterial or chemical, has now been proved to depend on contamination of food with bacteria and ingestion of specific toxins produced by the bacteria, as in botulism, or of the bacteria themselves, as in the paratyphoid group.

Just as the newer knowledge of the nutritive principles of food has made the selection of proper food a matter of public health concern, so have the newer conceptions of food intoxications or, as some refer to call them, food infections, added greater importance to food hygiene.

Mohler and Eichhorn, in their introduction to "Meat Hygiene," express themselves as follows:

> Regulation of the diet or hygiene has for its purpose the retaining and strengthening of the human or animal organism by increasing the internal resistance and by preventing any noxious effects. In doing this it is necessary in the first place to consider the nourishment of the organism. Inasmuch as meat constitutes the principal foodstuff for the human body, the regulation of the diet of man must also extend to meat products. And since recently there has been considerable attention paid to the latter from a hygienic standpoint, justification is had for the use of the words "meat hygiene," by which it is understood that part of the regimen which concerns the procurement of wholesome meat foods for man, their value to public health as well as the dangers which threaten the consumers of diseased or unsound meats.

The term "meat inspection" in this country practically always refers to inspection conducted by the federal Department of Agriculture under the meat inspection law passed by Congress in 1906. Under this act, the Secretary of Agriculture has the power to formulate regulations governing the antemortem and postmortem inspection of food animals; to prescribe sanitary requirements for the manufacture of meat products and proper and truthful branding and labeling. The law also gives the secretary the power to eliminate from the food supply all those carcasses and parts and meat products that are found in any way objectionable for human food and to destroy them.

It is to be remembered, however, that this law applies only to meats and meat products that enter into interstate or foreign commerce. It has no jurisdiction over meats that are sold and consumed in the state in which the animals are slaughtered. At present, something over 60 per cent. of the meats consumed in this country are manufactured in establishments operating under federal inspection. The remaining 40 per cent. of the meat receives little or no inspection because, while there are a number of state and municipal inspection laws, they are not thoroughly enforced. The fact that only one-half the meats consumed in this country receive adequate inspection can at once be seen to constitute an important problem of public health, but this will be referred to later.

It is not necessary here to go into the detail of the technic of meat inspection as conducted by the federal Department of Agriculture. It suffices to say that the technic is based on modern etiology and pathology of animal and human disease and the principles of sanitary science. All parts, organs and the important lymphatic glands are examined by palpation and incision. That it is thorough is at once proved by the fact that for the fiscal year ending June 30, 1924, of 79,966,913 animals given antemortem inspection, 4,228 were condemned, and of 79,814,060 given postmortem inspection, 342,539 animals were condemned and 1,355,394 parts were condemned. These condemnations were made because of thirty-five different causes, chief among which is tuberculosis, which was responsible for approximately one-half the condemnations. These condemned carcasses and parts were treated under the regulations in such a manner that none of the resulting products could under any circumstances be used for edible purposes. The removal of such enormous quantities of meats from the food supply of the country unquestionably constitutes a great sanitary achievement.

The elimination of undesirable and unwholesome food is only a part of the inspection. The conditions under which slaughter is conducted, and the manufacture of meat products, are as thoroughly under the supervision of the federal government and are as minutely controlled as is the postmortem examination. The equipment used, materials, etc., and even the clothing of the employees must comply with specifications of the regulations, and when at any time in the process of preparation or packing the animal or part becomes contaminated or in some way unwholesome, it is condemned.

The removal of objectionable meats either by antemortem or by postmortem inspection is not the only benefit public health obtains through meat inspection. There is another benefit, by some considered of equal importance to the actual withdrawal of objectionable meats. I stated before that tuberculosis causes approximately one half of all condemnations of carcasses and parts on account of disease; in other words, tuberculosis causes as much condemnation as the thirty-four other diseases combined. There is, perhaps, no better way of discovering the localities infected with

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bovine tuberculosis than meat inspection. When tuberculosis is found during meat inspection, the origin of the animal can usually be traced and in that way either governmental or other agencies notify the producer so that measures can be taken to eradicate it. The discovery of tuberculosis in animals during postmortem examination has been a great stimulus to eradication work against bovine tuberculosis, chief among which is the antituberculosis work of the United States Department of Agriculture. The antituberculosis work is as important as, if not more important than, meat inspection itself.

Tuberculosis is a ubiquitous disease and we are, perhaps, exposed to it everywhere and at all times; but it is generally conceded that milk from tuberculous cattle is one of the most fertile sources of infection of human beings, particularly children. It is believed in some quarters that all tuberculosis is acquired from milk in childhood and later changed to the human form. Tuberculosis eradication as stimulated by meat inspection has been greatly instrumental in diminishing contamination of the milk supply with tuberculosis, first, by the discovery of the location of tuberculosis herds, and, secondly, by the education of cattle producers to the value of the tuberculin test. In fact, meat inspection by the discovery of tuberculosis in cattle has undoubtedly advanced the movement for pasteurization of milk. Ditewig, said, in 1915:

> That the meat inspection service is the most effective existing agency for collecting on a broad scale data absolutely necessary to the success of any extensive program for the eradication of certain diseases from the food herds of the country can readily be shown.

The elimination of tuberculosis from dairy herds is more important from the standpoint of preventing tuberculosis than the destruction of meat from tuberculous cattle because, while infection of milk is an acknowledged etiologic factor in the spread of tuberculosis, infection with meat is practically unknown because muscle meat is rarely, if ever, affected with tuberculosis.

I stated before that the meat inspection law exercised jurisdiction over those meats and meat products which are shipped out of the state and exported, and that it has no jurisdiction over meats of animals killed and consumed locally, and for that reason only approximately 60 per cent. of the meats consumed in this country are inspected. We saw how efficient the inspection is by the searching and elimination of a large number of carcasses and parts. It is reasonable to assume that the meats prepared in noninspected establishments come from animals affected with the same conditions, at least to the same degree as are animals that are at present inspected, and it follows then that 40 per cent. of the meat consumed in this country is more or less objectionable. The necessity of providing some means of inspecting this quantity of meats is therefore at once apparent. The installation of some form of inspection of the uninspected meats and the supervision of the conditions under which they are prepared is an important problem of public health today.

Meanwhile, it is paramount as a public health measure that the consumer be acquainted with meat inspection—its extent, function and sanitary benefit. A great deal is being accomplished today by scientific writers, by magazines, by the press, by public health organizations and health departments, state and municipal, in teaching the public the selection of a well balanced diet; but the public has not been equally well informed in the hygiene of food. The consumer ought to be told how to select food on the wholesomeness and purity of which he can confidently rely. In order to select meats that have been inspected and found sound and been prepared under sanitary conditions, all the consumer needs to do is to insist on meats that bear the stamp of the United States Department of Agriculture, reading "U. S. Inspected and Passed." This stamp shows that the meat comes from a sound and healthy animal and was found fit for human food, that it was prepared under sanitary conditions, and that nothing of an injurious nature was used. Furthermore, it signifies that the contents of the container are exactly as the label reads, no more nor less. In addition to the knowledge on the nutritional value and hygiene of food, the public ought to be informed on the safe methods of preparing and keeping food in the home. From the standpoint of preventing food intoxication or infection, it is just as important that the housewife be informed of the proper methods of preserving food, either for a short period by refrigeration or for a longer time by heat, as it is to know how to buy hygienically prepared food.

ABSTRACT OF DISCUSSION

DR. THOMAS CASTOR, Philadelphia: Dr. Lipman has very completely outlined the necessity of meat inspection as a public health measure and has shown the thoroughness of the federal inspection service, which covers 60 per cent. of the meat supply, so I would like to emphasize the necessity of inspecting the other 40 per cent. by calling attention to a common practice of sorting out unsound or diseased animals at the stock yards or country shipping points and slaughtering them locally where no inspector will see them to pass on their fitness for food. Most of the states in this country have no system of state inspection or have so inadequate a force that they can only look after the worst places and clean up or eliminate the pest holes. This also holds good with the ordinary city inspection; so in view of these conditions it appears that the only way ever to secure thoroughly satisfactory meat inspection is to supplement the federal service by establishing municipal or community slaughtering plants where all of the slaughtering would be conducted, excepting only that performed under federal supervision, as thus a satisfactory and efficient service could be performed by a reasonable sized force of inspectors, because it is doubtful whether the ordinary city can ever supply sufficient funds to maintain enough inspectors to supervise properly the slaughtering at the considerable number of small, widely separated killing plants that are usually found operating in most cities. Unfortunately, many cities and especially small towns pursue an opposite policy and prohibit all slaughtering within the corporate limits, thus depriving these plants of all the advantages of city water and sewerage systems and force the slaughtering houses into rural districts where they are beyond all jurisdiction of the local health officials, thus leaving the butchers to do about as they see fit both as to sanitation and as to the handling of diseased carcasses, whereas if they were required to remain within the town limits they could be forced to keep clean and to handle their products in a proper sanitary manner. When establishing a local meat inspection service, the federal regulations can be used as a guide so far as practicable, and a veterinary inspector having had federal experience should be secured if possible, as these men have gone through a thorough drilling in the inspection work and are, I believe, less likely to be influenced by personal or political pressure.

DR. GEORGE M. KOBER, Washington, D. C.: In view of the fact that the inspection now covers only about 60 per cent. and until inspection becomes more universal, it seems to me at least desirable to raise our voices in favor of cooking all meat products. The same principle applies to milk, so far as pasteurization to a certain point is absolutely essential for the destruction of infectious germs. This much we can all do. In our present state of knowledge, nothing short of general pasteurization will confer immunity from milk-borne epidemics. Typhoid epidemics have been traced to consumption of even certified milk. I enunciated that principle fifteen years ago and I have had no reason to change my mind.

Dr. W. H. Lipman, Chicago: There are two important points to consider from the standpoint of the consumer. First, how to secure inspection on meats that are at present uninspected; second, how can the consumer tell that he is getting inspected meats? Dr. Castor referred to the "little purple stamp" that is placed on carcasses and passed by the government to show that the animal has been inspected and found fit for food. If the consumer will insist on meats that have this stamp, he can be sure that he is getting sound and wholesome food.

EPIDEMIC ENCEPHALITIS

A COMMON ETIOLOGIC FACTOR, AND ITS IMPORTANCE IN PREVENTION *

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Aside from the question of infection there are few suggestions regarding the cause of epidemic (lethargic) encephalitis. An overliability to contract the disease is shown by certain classes, such as males (though not in all statistics), pregnant women, physicians, persons of foreign birth, and especially recent sufferers from influenza. Typhus, measles, mumps, pneumonia and scarlatina have also been noted in the histories, as have parturition, sepsis and accidents or operations particularly about the head. There has also been some question whether poliomyelitis or herpes and epidemic encephalitis might not be closely related. The upshot of all this is that any exhausting infection or occurrence can evidently play a contributory rôle.

My purpose in this paper is to point out a coordinate and more constant factor. This is to the effect that the victims are recruited from those who at the time have become exhausted by prolonged or excessive tire and especially by lack of needed rest. The one common element is loss of sleep. In most instances there has been a burning of the candle at both ends (overtire and underrest).

Many agencies of allied character doubtless can cooperate, such as toxemias, drug habits, bad air, anxiety and shock. Depressed mental states are a common cause of insomnia, and naturally contribute, though insomnia and enforced loss of sleep are not identical. Sexual excesses can do the same. This factor is of practical importance whether epidemic encephalitis is caused by a specific virus or not.

Some years since, a report from the Northwest noted that physical depletion, and especially loss of sleep, were frequent antecedents. Bassoe made similar observations. English reports figure overwork and a possible breakdown of immunity as predisposing causes.

Instances of like purport can be picked up in various publications. In general, however, it may be said that the antecedent history in these cases has received slight attention. While, therefore, there may be little radically new in these observations, scant account has been taken of the like, nor has their significance been duly appraised.

The matter attracted my notice more from an old habit of giving special attention to the amount of sleep usually secured—a field in which few attempt to gather exact information.

As only cases in which the diagnosis was clear are included, details need not burden the paper, beyond the statement of the factor in question.

In the early days of the outbreak this side of the subject was less scrutinized. Later cases, however, in sufficient number can now be listed to have significance.

The great problem is to work out the relevant items. Difficulty in so doing is doubtless the reason why the matter has not been better recognized. As yet, and until methods can be systematized, it is a time-consuming process, requiring the personal attention of the physician. Useful tips on obscure and nocturnal habits of the human can sometimes be obtained from social experts. In some cases the job is easy if attention is given the matter, but in many instances to secure the needed information it is necessary to make a determined "drive" backed by confident assurance that the facts exist. As the particulars in question are rarely twice alike the skill of a detective can find full play. Cases that have existed a long time are impossible to work out, or yield only to elaborate delving. General statements cannot be accepted, as these patients are always sure they have had plenty of sleep. Such night-habitués are often very secretive. At any rate, the items desired refer to lines of conduct about which the patient is not proud, or not in condition to state. Knowledge of the patient's life for a period before the onset may have to be extracted by bits, and then pieced together, before the clue is apparent.

To quiz or cajole, josh or jolly, may not succeed or need to be continued until some one gives the facts. The presence of strangers or of an entourage does not facilitate disclosures.

In most institutional and chronic cases, therefore, it is impracticable to get the required data. I long since gave up trying to do so as a routine in hospital work, and had to wait for enough patients in private practice. This report is based on twenty-eight such cases, including two in physicians. Several are given in brief to illustrate types and in part show the trouble encountered in eliciting this phase in the histories.

Case 1.—A chauffeur, aged 18, seen in February, 1923, though his case was acute and he was confined to the bed, was able to deny strenuously all excesses and deprivations. Both parents also positively confirmed his story of orderly living. But on the side, an uncle stated that the patient had catered to a fast crowd of youths, carried them to all hours of the night, caroused with them, frequented night joints, and been out until 3 and 4 a. m. six nights a week on an average.

Case 2.—A man, aged 55, seen in June, 1924, was troubled first about the middle of February. "He seemed to get run down a while before this came"; in fact, he had been tired out and "nervous" all the previous winter. No cause for this condition or for his attack could be discovered by the most diligent inquiry of the patient or his wife. He was "a home body," was never out evenings, had no worries, and lived an ideal existence, aside from one or two hours a day in the subway. It seemed impossible to dent the story of perfect living at any point, or to disclose any changed conditions. Here was apparently a case that must remain unsolved. The only other morbidity was a chronic systolic bruit at the mitral valve. However, conversation later with a son disclosed the

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fact of a new radio the previous October, and the patient's heedless absorption in it. "He sat up all hours of the night" with it the whole winter.

CASE 3.—An electrician, aged 31, seen in January, 1925, first gave the duration of his trouble as one and a half years. From much questioning, however, it appeared that he was in a distant hospital with it for more than six months in 1922-1923. Further inquiry disclosed an acute attack in January, 1920, from which he remained weak, "extremely nervous" and sleepy. It was finally traced further back. He had been in the American Expeditionary Forces more than two years, in part at the front. The winter of 1918-1919 in Paris he had on his own showing only from six to six and a half hours' rest a night. Then in the spring he had an attack of the influenza, with a week in bed, followed by a chronic state of excessive sleepiness. Whether the influenza or not, it was evidently the onset of the encephalitis.

CASE 4.—A Russian, aged 51, of large frame, a job painter and decorator, had had left sacro-iliac trouble three years before and was relieved by Dr. Rushmore, the orthopedist, by whom he was referred to us. The onset was somewhat insidious. He had had pain in the left foot at times during the past year, and an occasional "shake" in that foot when on a ladder, with two acute upsets. The lethargic sequel was more pronounced the six weeks before examination. All shortcomings were persistently denied. No clue was discoverable, beyond pyorrhea. However, by the next morning he was so anxious to get home to a town in Jersey, that a little emphasis brought out the story. He was known locally as "the hardest worker in the country." During the active major part of the year he retired at from 10:30 to 11, and rose at 5. He worked from 6 a. m. to 7:30 p. m., less a brief stop for lunch. Minor taxes on his rest period were: a radio every evening, an automobile ride with his family many evenings, movies once a month, as fireman out two nights a month, nocturia every two or three nights and snoring regularly. Hence, besides being an inordinately hard worker for thirteen hours a day, he allowed only from six to six and a half hours a night for rest.

CASE 5.—A boy, aged 18, seen in February, 1923, with acute trouble of twelve days' duration, lived in Brooklyn, but attended college in Manhattan. He was a bright student, necessitating work on his studies until after midnight. He rose at 6:45 to get a snatched breakfast and be at his class in time. This reduced his sleep allowance to at most six and a half hours a night. There was the further evil element of two hours daily spent in the wretched air of the subway at the time when it was crowded. Besides these things he had just been through the midwinter examinations, evidently the last straw.

CASE 6.—A broker, aged 26, was in coma when first seen in January, 1921. He was a man of large mold, but with an old aortic regurgitation. The trouble began the month before. He had been "overworked for some time." He lived out of town, requiring an hour each way in transit. He regularly remained until late in town sporting. He had only four or five hours of sleep nightly for the previous two or three months.

CASE 7.—Mrs. D., aged 25, seen last December, had a subacute attack beginning a month before. She had been a public school teacher for some years. She had been married six months. Previously she had had no household duties. She now cared for her apartment, and got some meals, besides continuing her teaching at a distance. Moreover, most of the evenings she had been out, socially, not getting home before midnight. She rose by 6:45 a. m. Though of excellent physique, her strength had been waning for some time under this load of work and shortness of rest (barely six and a half hours a night). Then came the acute symptoms.

CASE 8.—A youth, aged 17, seen in January, 1921, was of good physique, but growing fast. The attack began a week before. Besides regular day work he attended a business school twice a week, not reaching home till 10:30 p. m. One other night a week he was at the regiment until after midnight. One night a week he bowled until after midnight. Two nights a week he stayed late with his girl. This left at most only one free night a week. It was far too strenuous a life for a youth who had not completed his growth.

CASE 9.—A man, aged 26, of Italian stock, seen in February, 1925, was a twin of sturdy physique. He was unmarried, and never had been a sexualist. Previous to epidemic encephalitis six years before, he had been a clerk. He rose at 6 a. m. and reached home at 8, 9 or 10 at night, with supper after. Saturdays he worked until midnight or 1 a. m. and also Sunday morning. He went to the movies once a week after his work. Twice a week he stayed at a friend's home until 10:30. He went to a dance one or two nights a week. He had a phonograph going when home. Then half the nights he read in bed until 2 a. m. Even at that he slept poorly, thus losing some of the remaining time. Hence, besides working twelve hours a day, he netted on an average less than five and a half hours sleep a night.

CASE 10.—A man, aged 21, seen in April, 1925, a sales manager, had epidemic encephalitis in the summer of 1921. He felt "sort of weakening spasms" in his legs prior to that, and every stride he made was an effort." The sequels were worse since recent illness in the family. Previous to the onset he rose at 8, was at business by 9, and not home until midnight, and Saturdays not until 1:30 a. m. He always ate supper after getting home. He then read one or two hours. He also spent two hours a day in the subway. There were a few other minor interferences with sleep. Hence, besides long hours of work, and time in the crowded subway, he had an average of barely six hours a day for sleep.

CASE 11.—A vigorous man, aged 23, seen in April, 1924, had his first attack four years before. He "stayed out with the boys" at least one night a week. Then a couple of days before the onset, he was up for forty-four hours at a stretch, working at urgent business plans.

A close counterpart of this case is Case 3 of Houda,[1] in which a man, aged 30, "had worked for forty-eight hours without stop, just previous to onset."

These two cases are so nearly identical and so special in type as almost to constitute experimental proof of the part that lack of sleep plays in this trouble.

CASE 12.—A man, aged 38, seen in April, 1923, had worked very hard as a tailor up to an acute attack a year before, sewing regularly from 4 a. m. until midnight.

CASE 13.—A man, aged 26, seen in 1923, had risen at 4:30 a. m. and worked until 5:30 p. m. for six weeks before the onset of his trouble. At that time he slept only six hours a day.

CASE 14.—A bank clerk, aged 25, had had epidemic encephalitis three years before. He had long been an erotic. He smoked twenty-five cigarets a day. One hour daily was spent in the subway. He rose at 7 a. m. and was at business until 7 or 8 p. m. Then seven nights a week he spent at the chess club until midnight. After that, two or three nights a week, he went to a restaurant. At best he was not in bed until 12:30. He was slow getting asleep, and was a dreamer. Hence, he averaged less than six and a half hours' rest a night.

FREQUENCY AMONG PHYSICIANS

That physicians have a special liability to epidemic encephalitis has been remarked by various observers. This has also been apparent in Brooklyn. I. S. Wechsler, in 1921, found it "almost sixteen times as frequent as among average population."

At the present day we do not to any like extent see physicians affected by the diseases with which they have to deal, unless occasionally in laboratory work. There is consequently a natural inclination to attribute this to infection from cases seen in practice; but before doing so it is well to see whether the facts substantiate the suspicion. Several of my medical friends have been killed by automobiles—also an undue proportion —yet no one thinks of this as a bacterial infection.

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[1] Houda, E. O.: Northwest Med. **20**: 182 (July) 1921.

If we presume that medical men contract the disease from their brief association with such patients, then the families of such affected colleagues, exposed to it at all stages as they are, ought in turn to be scourged. Yet practically it never spreads to any member of their households. Nor would a single case signify much, in view of the added care. We can therefore be sure that the frequency of this trouble among physicians is due to some other cause; and close scrutiny of the individual case commonly discloses the reason for susceptibility.[2]

THE NORMAL AMOUNT OF SLEEP

In estimating the normal amount of sleep, it is possible to introduce an element of mathematical exactness. Certain standards are required for comparison, chiefly regarding sleep.

So far as concerns the present discussion, it is sufficient to know that a large share of the public of whatever age needs at least eight hours of rest daily. Those persons requiring the most are presumably the ones who break soonest on curtailment. The amount a patient previously secured has to be reckoned up as exactly as possible, if the relation to epidemic encephalitis is to be calculated.

In the cases in which the sleep allowance was figured with some definiteness (eighteen out of twenty-eight), the amount in each was well under seven hours, usually six and a half or less. In the other ten cases the facts were similar but were not determined with the same exactness.

The sleep requirement of individuals differs, but only within moderate limits. When the total is cut down to seven hours for any length of time the average person is taking risks. Some appear to tolerate it, but many then evidently become sensitized. And any further reduction or temporary bad break makes the candidate eligible for various ailments including the sleeps.

COMMENT

The cases given, with many more at hand, indicate that we have here a causative factor that is at least common. The cases include both acute and chronic forms in males and females from 15 to 56 years of age at onset. Regarding the uniformity of occurrence, the most direct evidence to be cited is the fact that my last fourteen consecutive private cases are included in this report. These cases embrace all the eligible patients seen last year and this, and show what can be found by closer attention.

Circulation.—Chronic valvular leaks (two cases), low blood pressure and suboxidation naturally accentuate the effect of tire, and are overfrequent in the histories.

Syphilis.—To avoid any question of its possible relation, all cases with any suspicion of syphilis, past or present, or with positive Wassermann reactions, were excluded.

Study and Examinations.—The increase in number and complexity of subjects imposed on the student class, with the sequent limitation of rest and sleep, affects most of the younger element in the community. There is also a great multiplication of present-day examinations. Insomnia and other morbid tendencies are favored. Midwinter examinations with us mature a seasonal crop of epidemic encephalitis (two out of twenty-eight in this series).

In Children.—Bramwell, in a review, concludes that epidemic encephalitis "is very uncommon or at least seldom recognized in childhood." From the few cases seen, educational excesses as just noted are prominent in the histories of patients with epidemic encephalitis before the teens. My associate, Dr. O. C. Perkins, finds that these young victims are of the mentally active class. Parents are not always aware of children's need of longer sleep, or permit undue abbreviations.

Cases Before School Age.—These cases may need separate study. A couple of points are to be noted. Both serous and tuberculous meningitis at this age have often proved difficult to distinguish from epidemic encephalitis. Sundell[3] says, "Of the twenty-four hours of the day, the new-born infant sleeps for twenty-two, the baby of 6 months for eighteen, and the child of a year for fourteen.

Suggestive is the mention in the English report[4] of the "case of a young child who had recently obtained two 'firsts' at a baby show," which certainly must have disturbed its rest.

Several cases have been reported in which nursing infants appear to have taken it in some way from affected mothers, suggesting a modified form of development.

Causative Trends of Modern Life.—Are there features of recent development in our mode of living that in this sense might contribute? Many can be mentioned, such as the phonograph (now less in evidence), telephones, movies, the radio after midnight, automobiles, various Volstead effects, subways and tunnels in large centers, clubs and lodges, cross-word puzzles and other innovations. Improvements in illumination favor night life, in part at the expense of rest. So many of the changes in common activities involve abridgement of rest. Collectively, they furnish a large background when added to older customs. In populous centers all these evils are massed, affording a plausible explanation of the urban excess.

Not to be forgotten are the recent prophets who delude many with the idea that little sleep is necessary.

What corresponding malconditions are active in other countries can be left to their investigators.

A Preliminary Period.—This does not refer to the common "prodromal stage of from one to ten days" with grippal symptoms, but to forerunners of a break, premonitory warnings extending back from a month to a year or more before the acute stage. A suggestion of this was noted in six cases of this series, and is recorded in three of Tilney and Howe's[5] cases. Wimmer[6] enlarges on this point.

These manifestations are largely such as follow sleep deprivation, and are what might be expected when such an etiologic factor is in play. It does not prove or disprove infection, though it makes less imperative the view that it is a specific distemper. Occasionally these signs mass in a kind of preliminary outbreak, as remarked in the 1922 English report.

A study of these antecedents might afford means of recognizing impending trouble, and so help to ward off attacks. Tracing back the history would parallel the method of the present study, and probably meet with less obstruction.

Relation of Sequelae and Relapses.—In the after-phase as well as in the inception, this factor can play a rôle. When nominal recovery occurs it follows a variable period of disability. The patient then either feels the pressure of financial necessity or has an accumulated craving for former diversion. It is not unusual for such persons to remark that they are "going to have a good fling" to make up. Inhibition is still weak, and they drop back into careless living. Other evils doubtless cooperate.

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[2] When the paper was read, a physician who had suffered from epidemic encephalitis offered his experience in full corroboration.

[3] Sundell, C. E.: Practitioner **109**: 89 (July) 1922.

[4] British Ministry of Health, 1922, p. 40.

[5] Tilney, Frederick; and Howe, H. S.: Epidemic Encephalitis, New York, Paul B. Hoeber, 1920, pp. 33, 149, 179.

[6] Wimmer, A.: Chronic Epidemic Encephalitis, 1924.

An Aid in Diagnosis.—The principle proves at times of value in diagnosis. Uncertain cases are not rare. When there is any question, this element becomes an essential part of the history. Per contra, inability to uncover such a factor has repeatedly led to further and decisive study.

If experimenters gave attention to suitably exhausting their animals, they might score more definite knowledge of the modus of the ailment.

Susceptible Classes.—We can now glance back at the groups that show a special tendency to develop epidemic encephalitis and see how they comport with this form of etiology.

Men, more than women, tend to follow irregular living, and with us are more numerous in night occupations. Nurses afford a similar record to physicians.

Immigrants average a more strenuous existence, often including night work. This is accentuated when they have to learn a new language.

Pregnancy and parturition bring greatly increased demands on the individual, as also do infections and operations. Neurotic antecedents, as in several of Wimmer's cases, are naturally contributory.

That the vigorous and hardy fall to the count is to be expected, as they are more reckless in health matters than are those who are compelled to conserve their energies.

The susceptible persons prove to be those subjected to special strain, leaving no great margin for primary lack of resistance.

Personal Prophylaxis.—While there is no wholly satisfactory method of treating epidemic encephalitis, in the matter of prevention we have more chance of success. On the basis described I have no hesitancy either in advising the anxious how to avoid it, or in assuring them of safety if they follow proper living. Mild and incipient cases yield well to this plan. It might not be amiss to reinstall the curfew and the fine old habit of seasonable retiring. Individuals can take care of themselves in most cases without waiting for outside protection.

Infections, pregnancies, operations and infancy may still call for extra care.

It is often gratifying to note the prompt heed paid by those intact to this warning. Many a fond parent evinces a cheerful alacrity in applying the new brake. However, advising the afflicted requires so-called moral support or any other kind available.

54 Lefferts Place.

ABSTRACT OF DISCUSSION

DR. EDWIN G. ZABRISKIE, New York: Dr. Browning has almost started something that may create a reaction against further infringement of our personal liberties, but I sure that the warning he has conveyed to us today is of extreme importance. What centers or what parts of the brain are most exhausted by the attacks of fatigue that he has discussed today I do not know that anybody is prepared to say; but I, at least, feel the extreme importance of his warning in the connection of fatigue with especially an existing infection of some sort and the development of epidemic encephalitis.

THE EXCRETION OF NEUTRAL RED INTO THE HUMAN STOMACH *

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Following the introduction of phenolsulphonephthalein as a test of renal function, the analogous use of dyestuffs to test the function of other organs has been attempted. For instance, phenoltetrachlorphthalein, indigocarmin and methylene blue have proved of some value as liver function tests. On account of the ease with which gastric contents may be recovered, and the fact that certain dyestuffs are readily excreted into the stomach, chromoscopy has also recently been applied to the study of the secretory function of the stomach.

Fuld, in 1908,[1] had observed that neutral red was excreted by the gastric mucosa. Finkelstein,[2] using a Pawlow pouch in dogs, found that the neutral red was excreted in the gastric juice in large quantities and that fluorescin and methylene blue were excreted only in traces, while eosin, indigocarmin, phenolsulphonephthalein, congo red, acridin red and phenoltetrachlorphthalein did not appear in the stomach after subcutaneous administration. Saxl and Scherf [3] reinvestigated the excretion of dyestuffs in the stomach of human beings, rats and rabbits. Glaessner and Wittgenstein [4] selected neutral red to study the secretory function of the human stomach. The findings of these observers with reference to the use of the dye as a test of gastric function are conflicting. Saxl and Scherf deny its value, while Glaessner and Wittgenstein find it very valuable. The latter assert that the excretion in the fasting stomach of neutral red follows closely the gastric acidity; i. e., in the normal, the dye appears in from eleven to fifteen minutes; in anacidity, the dye is not excreted; in hypoacidity, it appears in from twenty to sixty minutes, and in hyperacidity, in from seven to eight minutes. Recently Carnot and Gaehlinger [5] repeated this work and agree with the findings, saying, "In general there seems to be a correlation between the free acidity and the time of the elimination of the neutral red."

In view of the comparative novelty of the subject and the small but conflicting literature, it seemed important to make further studies. As a preliminary investigation, a series of forty-six unselected, ambulatory patients in the gastro-intestinal division of the outpatient department were studied as follows: The patients presented themselves with a fasting stomach; the Rehfuss tube was passed, and 2 c.c. of a 1 per cent. solution of neutral red (Ehrlich's neutral red was freshly dissolved in distilled water and boiled) was injected intramuscularly in the gluteal region. The gastric contents were aspirated every two minutes until the dye appeared as a definite pink discoloration. If no dye appeared, the aspiration was continued for two hours. Rehfuss, Ewald, alcohol and meat extract test meals were employed to confirm the acidity figures, particularly in the patients with achlorhydria. The observations are recorded in the accompanying table.

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* From the medical department of Mount Sinai Hospital.

[1] Fuld: München. med. Wchnschr. **43**: 908, 1908.

[2] Finkelstein, R.: Arch. f. Verdauungskr. **30**: 299, 1922.

[3] Saxl, P., and Scherf, D.: Wien. klin. Wchnschr. **36**: 671 (Sept. 20) 1923.

[4] Glaessner, K., and Wittgenstein, H.: Klin. Wchnschr. **2**: 1650 (Aug. 27) 1923.

[5] Carnot, P., and Gaehlinger, H.: Paris méd. **2**: 377 (Nov. 8) 1924.

COMMENT

In the thirty-six cases in which the dye appeared, the average excretion time was twenty-two minutes. There does not seem to be a close correspondence, when free hydrochloric acid is present, between the degree of the acidity and the time of excretion. In general, however, the patients with hyperacidity excreted the dye earlier; eleven patients with hyperacidity averaged seventeen minutes (of these, seven had duodenal ulcer). The subacidity cases, contrary to expectation, gave a normal average—twenty-one minutes in seven cases. Thirteen patients with normal acidity averaged twenty-one minutes. The excretion of the dye was observed in twelve cases of true achylia gastrica; i. e., there was a persistent absence of free acid and ferments In three cases it appeared in sixty-five, ninety and ninety minutes, respectively. In the other nine, it did not appear in two hours. A study of the table with reference to the disease reveals that nine patients suffering from duodenal ulcer excreted the dye in the average time of thirteen minutes, and one in thirty minutes; two patients with gastric ulcer in twenty-three minutes; nine patients with chronic disease of the gallbladder, in seventeen minutes; and two patients with cholecystitis and achylia gastrica showed no excretion.

Results of Observations

Patient	Disease	Free Hydrochloric Acid	Total Acidity	Dye Excretion in Minutes
1	Achylia gastrica	0	12	65
2	Gastric neurosis	38		25
3	Ulcerative colitis	40		45
4	Achylia gastrica	0	15	90
5	Gastric neurosis	30	40	20
6	Cholecystitis	30	50	15
7	Constipation	40	60	15
8	Constipation	20		14
9	Gastric ulcer	18	30	22
10	Gastric ulcer	40	50	25
11	Ulcerative colitis	35	52	18
12	Duodenal ulcer	50	80	15
13	Duodenal ulcer	20	40	30
14	Gallstones	45	55	16
15	Duodenal ulcer	60	78	16
16	Gallstones	50	70	16
17	Gallstones	22	36	16
18	Pulmonary tuberculosis	9	33	18
19	Duodenal ulcer	9	21	16
20	Gallstones; achylia gastrica	0	10	No excretion
21	Ulcerative colitis	28	42	12
22	Achylia gastrica	0	10	No excretion
23	Achylia gastrica	0	10	No excretion
24	Pernicious anemia; achylia gastrica; syphilis	0	18	No excretion
25	Gastric neurosis	31	64	27
26	Duodenal ulcer	70	80	12
27	Gallstones ?.	0	14(Fasting)	12
		0	6(Ewald)	Present
		25	40(Rehfuss)	12
28	Gastric neurosis	8	18	46
29	Syphilis	23	..	23
30	Gallstones	20	30	25
31	Achylia gastrica	0	10	90
32	Constipation	30	38	47
33	Duodenal ulcer	20	30	13
34	Gallstones	20	40	15
35	Achylia gastrica	0	10	No excretion
36	Achylia gastrica	0	12	No excretion
37	Achylia gastrica; mucous colitis	0	15	No excretion
38	Duodenal ulcer	41	61	12
39	Gallstones	5	9	16
40	Duodenal ulcer	16	32	16
41	Duodenal ulcer	52	69	12
42	Gastric neurosis	42	65	15
43	Duodenal ulcer	62	74	10
44	Achylia gastrica	0	24	No excretion
45	Constipation	8	26	14
46	Syphilis; duodenal ulcer	18	25	15

A few facts seem to be brought out by this preliminary study. Apparently, in certain irritable conditions in or near the stomach, such as hyperacidity, duodenal ulcer and disease of the gallbladder, the time of the appearance of the dye is somewhat hastened. However, the variation in the excretion time of the dye is so little, and the correspondence of this variation to the disease present is so inconstant that the test appears to have little, if any, diagnostic value. The failure of the dye to be excreted before at least an hour, if at all, in the cases of true achylia gastrica seems more important and of some value in the study of disturbances of the secretory function of the stomach.

For example, in a case of cholelithiasis, the ordinary methods of study disclosed an achlorhydria both in the fasting contents and after an Ewald test meal. The dye, however, appeared in twelve minutes. A confirmatory Rehfuss test meal revealed 25 degrees of free hydrochloric acid. This case suggests the possible use of the dye to distinguish true from false achylia gastrica.

This question, as well as the excretion of the dye in patients with pernicious anemia, gastric carcinoma, achlorhydria and heterochylia, and in partial gastrectomy, is now being investigated. A study of the excretion of the dye as influenced not only by the normal physiologic stimuli, but also by pharmacologic agents, such as pilocarpin and histamin, is also planned.

SUMMARY

1. The excretion of neutral red into the stomach was investigated in forty-six cases.

2. Patients with normal or subnormal free hydrochloric acid figures excrete the dye in a fairly constant average time of twenty-one minutes.

3. In hyperacidity, the time of the appearance of the dye is hastened to seventeen minutes. Patients with duodenal ulcer or gallbladder disease, with or without hyperacidity, often show a similar figure.

4. In achylia gastrica, the excretion time is greatly prolonged to an hour or more. In most cases the dye does not appear in the stomach.

5. These preliminary observations suggest that the test may prove of value, in addition to the usual methods, in the study of the secretory function of the stomach, particularly in the various forms of achlorhydria and achylia gastrica.

Clinical Notes, Suggestions and New Instruments

ANGINA PECTORIS IN A YOUTH OF EIGHTEEN

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History.—M S, a boy, aged 18, white, was admitted to the medical service of Mercy Hospital, March 12, 1925, at 6 p. m, complaining of agonizing pain over the whole surface of the chest and the epigastrium This pain was not referred to the arms or to any other part of the body; it was constant, though it waxed and waned in intensity. He had suffered in this manner throughout the day, though not so intensely. There had been nothing unusual in his habits, diet, health or exercise to account either to himself or to his family for the occurrence of this seizure; he had never had a previous attack During the few days preceding, there had been no symptoms of ill health, and this attack was ushered in with no symptoms except the pain.

March 3, the patient had been admitted to the surgical clinic of Mercy Hospital because of pain in the right lower quadrant of the abdomen A tentative diagnosis of chronic appendicitis was made by the surgeon in charge, Dr. E. A. Ficklen, but operation was not advised at the time, as the signs and symptoms did not warrant a positive diagnosis This attack is said to have lasted only a few hours. The boy's mother said that her son had enjoyed splendid health in the past; that he went in for strenuous athletics and heavy physical work, which did not seem to be limited by undue fatigue or breathlessness. She did not remember that he had ever had a sickness, and he had been particularly free of the usual diseases of childhood. She was positive that he had never had scarlet fever, diphtheria, tonsillitis, rheumatism or chorea. There was no history of venereal disease. The father had an aneurysm, of which he died at about 40. The mother had bronchial asthma, and congenital miosis of both pupils, but circulatory disease could not be demonstrated. Her blood was negative to the Wassermann test. Other members of the family were said to be in good health, though accurate details could not be obtained.

Physical Examination.—The young man was of the Alpine type, well developed and well nourished. He sat up in bed, but was bent forward, as one in great pain. His face was flushed and covered with sweat; his expression was anxious. The temperature was normal; the pulse full and regular, beating 100 times a minute. The blood pressure was 120, systolic, and 80, diastolic. The apex beat of the heart was located in the fifth interspace, inside the nipple line; the impulse was regular, not diffused or heaving, and there were no thrills. Percussion revealed no cardiac enlargement. Auscultation found the heart sounds regular and clear, and there were no murmurs. Examination of the lungs revealed no abnormalities (a particularly careful examination was made for dulness and râles at the bases). The examination of the abdomen was negative, except for moderate rigidity in the epigastric region. The genitals appeared normal. The urine contained no albumin, sugar or casts. The patella reflexes were present and equal. The pupils were miotic, and did not react to light or to distance (the state of the pupil was said by the mother to be congenital, and was identical with her own). The teeth were in good condition, and the tonsils were not enlarged or inflamed.

Course.—The patient was given one-half grain (0.03 gm.) of morphin by needle, without much relief; this was repeated in a few hours, with only transient relief. The application of ice caps had no effect. Nitroglycerin was not given, nor was amyl nitrite. There was vomiting of a frothy mucous fluid on several occasions. At no time did the pulse become rapid or irregular, and cyanosis did not develop. About 3 o'clock on the morning of March 13, at the height of a severe paroxysm of pain, the patient suddenly died. Prior to death, the diagnosis of angina pectoris was not considered on account of the patient's age.

Necropsy Findings.—At necropsy, the heart was found to weigh 240 gm. The coronary arteries were tortuous and rigid. The myocardium was light brown and of firm consistency. In the interventricular septum, the anterior wall of the left ventricle and the papillary muscle of the left ventricle were irregular areas, varying in size from about 0.5 to 1 cm., which were pale and sclerotic (healed infarcts). The endocardium showed a few small plaques of sclerosis about the base of the tricuspid valve. The right auricle was dilated. The coronary arteries, when opened, showed numerous yellow and gray areas of sclerosis throughout. Near the origin of the right anterior coronary artery was found a large excrescence (organized thrombus), which had almost occluded its lumen; this thrombus showed marked calcareous infiltration. The valves were normal. Microscopically, all the blood vessels showed proliferative endarteritis. Many of the smaller vessels were completely occluded, while the larger ones were atheromatous, with hyaline degeneration and calcareous infiltration. There were focal areas of cloudy and fatty degeneration, and diffuse and localized connective tissue increase (fibrosis and scar formation) throughout the myocardium.

The omentum was found attached by fairly recent adhesions to a small area over the outer third of the appendix, which measured 6.5 cm. in length, was somewhat thickened and showed near the tip a small injected area about the size of a pea. The lumen was almost obliterated by scar tissue. Microscopically there was found subacute and chronic exudative over chronic proliferative (obliterative) appendicitis.

The liver weighed 1,500 gm.; it was enlarged and was brownish gray, with white striations of scar tissue over the surface. The cut surface was of a mahogany color with congestion of the central veins and some increase of connective tissue. Microscopically there was marked congestion (central), slight connective tissue increase (intralobular), fatty and granular degeneration, and an area of acute exudative (suppurative) inflammation (focal abscess).

Nothing of note was demonstrated in the other organs of the body.

SUMMARY

The organs presented an acute (toxic) inflammation, with a small (microscopic) abscess of the liver, secondary to an infection of the appendix, which at the time of death was in a subacute stage. The sudden death was the result, not of the foregoing infection (which, however, may have been contributory) but of the disease of the vascular system of the heart itself, as described above. The changes noted in the vessels of the heart and also in many of the smaller vessels of the other organs were characterized by primary changes in the intima, with marked proliferation of the endothelium. This character of lesion is the result of a diffusible toxin acting directly through the circulation. The absence of perivascular round cell infiltration in any of the vessel walls or elsewhere or other gross or microscopic evidence of syphilis in the organs rules out syphilis as the etiologic factor. Likewise is the absence of any Aschoff bodies in the heart against a rheumatic etiology.

It seems possible that the injurious agent (toxin) responsible for the vascular changes came from the appendix during its acute and chronic stages of inflammation.

COMMENT

True angina pectoris in a person under the age of 20 is very rare. Houchard[1] quotes Gauthier's report of its occurrence in four patients between the years of 10 and 20, proved at necropsy, and also Walter Maxon's necropsy of a child of 11, whose coronary arteries showed sclerosis. Powell[2] reports no cases under the age of 20, but quotes Dreschfeld's report of a boy of 12, who had the symptoms of angina pectoris and who died suddenly in an attack, but no reference is made to a necropsy of this case. The more modern textbooks and systems of medicine make no reference to cases occurring in the young, and confine themselves to the statement that the disease is rare under 40.

It is interesting that there is no evidence of syphilis in this case, and also that there is no disease of the aorta. As the necropsy in this case was performed at an age before the arterial changes of later life could come on and confuse the pathologic picture, it seems to lend strong support to the prevalent idea that angina pectoris is due to changes in the coronary arteries, and, to a certain extent, to refute the theory that syphilis and aortitis play a necessary part in the production of this syndrome. It seems that, in this case, the plausible idea is that the cardiac changes were the result of a focal infection, the original focus being the appendix.

1524 Seventh Street—3625 St. Claude Avenue.

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[1] Houchard, Henri: Maladies du cœur, Ed. 2, Paris, 1893.

[2] Powell, Douglas, in Allbutt and Rolleston's System of Medicine **6**: 172, 1909.

Management of Delinquent Children.—Of the 879 supervised institutions in New York State, twenty are conducted for delinquent children, while several receive only truants or those with improper guardianship. This does not take into consideration the various orphanages, many of which accept delinquent or neglected children under special conditions, or of the mentally defective delinquents in the several state schools for the feebleminded. Of the group of twenty just mentioned, three are controlled exclusively by the state, seven are maintained by the Roman Catholic Church, four are nonsectarian, two are Jewish, one Protestant, two episcopalian, and one is municipal in management and is under the local board of education. The scope of these institutions is becoming increasingly delimited to the care of the truant child. Approximately 6,000 children are cared for in this manner, less than a third of whom are in state institutions.—Branham, V. C.: *State Hosp. Quart.* **10**:*611 (Aug.) 1925.*

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SATURDAY, OCTOBER 31, 1925

THE DIARRHEAS OF INFANTS

Although the manifestations of the diarrheas of infancy have long been recognized in medical practice and can in most instances be treated with success, the pathogenesis or etiology of such alimentary disturbances remains the subject of uncertainty and debate. For frank bacillary dysentery there is, of course, evidence to incriminate special intestinal invaders; yet the harm that they initiate can be described better in general terms than in specific references to disarranged gastro-intestinal functions. Lack of the "physiologic antiseptic" of the alimentary tract—the gastric juice—or reduced acidity of this secretion has in particular been incriminated in the past. Davison's[1] recent observations at the Johns Hopkins Hospital showed practically no difference in the reaction or cultures of the gastric contents of normal infants and of those convalescent from diarrhea. Streptococci and gram-negative cocci, which are mouth organisms, were more often found, as might be expected, in gastric specimens containing saliva; colon bacilli were more frequent in those contaminated by duodenal regurgitations.

The use of diets containing some form of lactic acid milk has become popular in recent years in the treatment of digestive disturbances of infancy. It seems undoubted that such diets increase the gastric acidity. Davison[1] is unwilling to admit, however, that the acidity, per se, destroys the bacteria present and thus explains the beneficial effects of lactic acid milk feeding. He noted that the reaction of the gastric contents has no apparent relation to the frequency with which various micro-organisms were found in the stomach. Consequently, the suggestion is advanced that the soured milk diets, even though they do not actually kill bacteria after ingestion, may constitute a poor culture medium; so that, as a result, bacterial growth does not flourish.

With respect to the duodenal conditions also, a revision of opinion is ventured. Duodenal cultures were found sterile more frequently in infants whose gastric acidity ranged from p_H 5.1 to 5.7 than in those in which it was p_H 3.6 to 4.4. The reaction of the gastric contents in the cases studied by Davison[2] did not have any apparent relation to the amount of duodenal amylase and trypsin. In the digestive disturbances of infants, especially in diarrhea and to a lesser extent in bacillary dysentery, he found the activity of these enzymes decreased while the hydrogen ion concentration of the duodenal contents and the number of colon bacilli in the duodenum were increased. These "unorthodox" findings call for a new interpretation of the pathologic physiology of the diarrheas. Davison proposes the following sequence of factors to explain the actual happenings in the diarrhea: (1) a primary cause, which still remains undetermined but which may be different in individual cases and include external heat, fever, infections and overfeeding with an undesirable diet; (2) a reduction in the activities of the duodenal enzymes as the result of the primary factor; (3) consequent accumulation of undigested and unabsorbed food residues; (4) invasion of these by organisms of the colon group from the cecum and large intestine, and (5) the decomposition of this food material by the micro-organisms with formation of irritating products that accelerate peristalsis. If such a view is even in part correct, it is evident that the problem of infant diarrhea cannot be envisaged from a single angle.

ARCHIVES OF PATHOLOGY

At the last annual session of the American Medical Association, held in Atlantic City in May, a resolution was introduced into the House of Delegates by the delegate for the Section on Pathology and Physiology, urging the establishment by the Board of Trustees of a periodical which would be representative of pathology and allied sciences in this field. At the meeting of the Board of Trustees held in Chicago in September, such a journal was definitely constituted, to be published by the press of the American Medical Association, along the same plan as the other special periodicals now issued, including the *Archives of Internal Medicine*, the *American Journal of Diseases of Children*, the *Archives of Neurology and Psychiatry*, the *Archives of Dermatology and Syphilology*, the *Archives of Surgery* and the *Archives of Otolaryngology*. It may safely be said that these journals have earned high repute in their fields not only as the leading periodicals in the specialties they represent but also for the manner in which they have advanced the progress of medical knowledge through affording investigators suitable mediums for the expression and interchange of opinion. Since the first of these periodicals, the *Archives of Internal Medicine*, was established, in 1908, the Board of Trustees has been constantly besieged by representatives of various departments of medicine to add to the list. It was these considerations, no doubt, that moved the Board of Trustees to give favorable consideration to the newest member of the group—the *Archives of Pathology and Laboratory Medicine*.

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[1] Davison, W. C.: Gastric Analyses in Normal Infants and in Those Convalescent from Diarrhea, Am. J. Dis. Child. **30**: 23 (July) 1925.

[2] Davison, W. C.: The Duodenal Contents of Infants in Health, and During and Following Diarrhea, Am. J. Dis. Child. **29**: 743 (June) 1925.

As many readers are no doubt aware, several periodicals devoted to pathology are already available both in this country and abroad. However, it was the belief of the representatives of the Section on Pathology and Physiology, of the Board of Trustees and of the editorial staff of the Association that none of these periodicals are representative of all of American pathology, and that there exists opportunity for the development of a complete journal along a scale similar to that of the other special journals.

The Board of Trustees selected as the first editorial board: Dr. Ludvig Hektoen, Chicago, local editor and chairman of the board; Dr. James Ewing, New York; Dr. W. G. MacCallum, Baltimore; Dr. William Ophüls, San Francisco; Dr. Alfred Stengel, Philadelphia, and Dr. S. B. Wolbach, Boston. This editorial board, working with the editorial staff of the Association, proposes to issue a periodical which will contain original articles in the field of pathology and laboratory investigation, abstracts of current literature on pathology, the transactions of important pathologic societies, news of those working in the field of pathology, a department of medicolegal pathology, reviews of new books on pathology, and monthly reviews of the present state of our knowledge of such topics as heredity, constitution and disease, lymphogranulomatosis, cancer, allergy, nephritis and nephrosis, and postmortem methods. A special section also will be devoted to new technical methods used in the laboratory and in the postmortem room, and, indeed, to all of those procedures which have been classified under the somewhat colloquial term, "laboratory medicine."

The growth of scientific medicine has resulted, not in a departure from the fundamental investigations of anatomic changes within the human body during and subsequent to disease, as was perhaps expected by some, but, indeed, in an intensification of the belief that a knowledge of pathology is absolutely fundamental to successful diagnosis and treatment in every field of medicine. Virchow, it has been pointed out, realized that pathology embodies both the anatomy and the physiology of the abnormal organ. German investigators, however, concentrated their attention on morbid anatomy, and Great Britain and France up to fairly recent times practically limited pathology to anatomic findings in the postmortem room. The modern experimental conception of pathology, as pointed out by Flexner, has developed a type of pathologist who is at the same time investigator and teacher in the school of medicine and pathologist to the hospital in intimate contact with the diagnosis and treatment of disease. Indeed, the modern medical school is likely to be built around the pathologic unit as the very heart of the institution. In this situation, when pathology as a science is beginning to come wholly into its own, it is well that American physicians should have from the first an authentic, independent organ ready to serve for the advancement of knowledge.[1]

THE NEWER GASTRIC PHYSIOLOGY

When Beaumont began his pioneer observations on Alexis St. Martin, the human carrier of a gastric fistula, he was familiar with studies on the functions of the stomach by several eminent predecessors and contemporaries. One might suppose, therefore, that after all the intervening years the behavior of the gastric mechanisms would have been well established. Despite this, however, there have been reversals of opinion as well as important increments of knowledge regarding the working of the abdominal organ in which the alimentary processes are initiated. Scarcely a detail of the story has not been challenged or denied at one time or another. From the standpoint of clinical physiology, this is unfortunate. The problems of gastro-enterology have often become confused because of the "instability" of the information that has been brought to bear on some of them. The history of the study of gastric physiology would furnish striking illustrations of the impediment that dogmatic assertions supported by the authority of a prominent person may introduce into the development of dependable knowledge.

Caution, a critical attitude and intellectual courage—the indispensable attributes of a real scientist—are nowhere called for more insistently than in the contemplation of the causes of gastric secretion and motility. Ivy,[2] newly appointed professor of physiology at the Northwestern University Medical School, has discussed some of the recently accumulated evidence that points to the desirability of reorganization of our knowledge in this field. He believes that gastric secretion can be divided into three phases with reference to cause: 1. The cephalic phase, caused by reflexes through the cerebrum (psychic) and by reflexes through the thalamus, midbrain and medulla, excited by the sight, taste and smell of food in the presence of appetite. 2. The gastric phase, caused by mechanical distention of the stomach and by the action on or by way of the gastric mucosa of substances in the food. 3. The intestinal phase, caused by the action on or by way of the intestinal mucosa of substances in the food or resulting de novo from digestion.

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[1] The Archives of Pathology and Laboratory Medicine, to be published monthly by the American Medical Association, 535 North Dearborn Street, Chicago; first issue, January, 1926; subscription price, $6 annually.

[2] Ivy, A. C.: Contributions to the Physiology of the Stomach, IX, The Causes of Gastric Secretion: Their Practical Significance and the Mechanisms Concerned, J. A. M. A. **85**: 877 (Sept. 19) 1925.

The existence of true psychic secretion has long been recognized. The fact that decerebrate animals will secrete gastric juice after excitation that proceeds from the head region is new and shows that other than solely cerebral reflexes are concerned therein. The recent reestablishment of the validity of Beaumont's observations on the effectiveness of mechanical factors as stimuli for gastric secretion has already been referred to in The Journal.[3] Ivy has indicated how this may be related to the clinical pathology of the hypernormal secretion that is associated with pylorospasm or pyloric stenosis. The retention of food in the stomach tends, through mechanical stimulation of the mucosa, to augment the gastric phase of secretion. The intestinal phase also is augmented because the chyme is more completely hydrolyzed, as the result of its retention in the stomach, so that when it is ejected into the duodenum it is more readily and rapidly digested. This more rapid digestion in the intestine means an increase in the concentration of secretagogues acting on or by way of the intestinal mucosa.

The beautiful demonstration that a sequestered and transplanted gastric pouch will secrete an acid juice through the influence of foods in the alimentary tract reinforces the belief that a humoral mechanism, as well as a nervous one, is concerned in the secretory act. This seems to be true whether or not there is some specific secretagogue or "gastrin" concerned as a hormone for the secretion or whether the provocative substances that act through the blood stream are merely ordinary food components. From a practical standpoint it is noteworthy that meat is the only food thus far studied containing a substance that stimulates on contact with the gastric mucosa.

THE COLORATION OF SUBDURAL BLOOD CLOTS

The much debated problem of the extrahepatic formation of bile pigment, to which reference has repeatedly been made in The Journal,[4] has found its solution in the positive demonstration that the liver is not essential to the production of bilirubin. Perhaps the most convincing evidence has been furnished by Mann's experiments at the Mayo Clinic, wherein it was observed that in the urine, blood plasma and fat of totally dehepatized dogs a yellow pigment appears which gives a positive reaction to all the accepted chemical tests for bilirubin. More recently, Mann, Sheard and Bollman[5] have made the evidence for the identity of the yellow pigment even more convincing. They have determined the curve of light transmission of the pigment and compared the curves obtained with the bilirubin in the plasma of a control dog having the common bile duct obstructed and gallbladder excised, with the curve produced by bilirubin removed from the gallbladder of the dehepatized animals at the time of operation. The general character of all the curves was the same. This would seem to be final evidence, as the physiologists contend, that the pigment which develops in the dehepatized animal is bilirubin, and that extrahepatic formation of bile pigment is possible. Rich likewise has lately corroborated the observation that the intra-abdominal organs are not necessary for the formation of bilirubin; consequently there can be little if any doubt that the liver must be considered to some extent as an excretory organ for this pigment.

These findings with respect to the extrahepatic genesis of bilirubin give a new significance to a phenomenon that has attracted neurologic surgeons in connection with chronic subdural hematoma. Cushing[6] has drawn attention to the peculiar greenish appearance often noted on the dural surface of the partly organized blood clot. The unusual color may sometimes be recognized through the semitranslucent dura. Though a discoloration of the dura of some sort is commonly observed in these cases, it is variously described.

Although there are as yet no records of discriminating tests of these greenish surfaced clots, Berglund of the Harvard Medical School is reported to have examined the dark, greenish fluids obtained from some of the intracranial tumor cysts, and demonstrated that the color is due to biliverdin. There is a likelihood, therefore, that the unusual colors of the subdural hematomas are attributable to an extrahepatic formation of biliary pigments. The demonstration of such products, notably under the designation of hematoidin, which may occur in crystal masses in old blood clots, has a long, familiar history. Cushing points out, however, that apparently it is only on the surface of the subdural hematomas that a sufficient amount of bile pigment is deposited to produce the deep icteric color under consideration. Present-day students of the subject have regarded the transformation of hemoglobin into biliary pigment as a function of the endothelial clusters widely distributed in the body, of which the Kupffer type is the best known. These represent the so-called reticulo-endothelial system. Following this suggestion, Cushing believes it safe to assume that the mesothelial cells of the leptomeninges are in their action similar to if not identical with the cells of the reticulo-endothelial apparatus as it has been described by pathologists in other parts of the body, more particularly in the liver and spleen; and as a part of this apparatus that they possess among other properties the ability to transform hemoglobin into bilirubin and biliverdin. These subproducts, indeed, become so heavily deposited on the surface of a long standing subdural hematoma as to give it an unmistakable icteric color. On the other hand, Cushing assumes, when the clot has been removed the subpial surface of the compressed brain will usually be found to have the yellowish color commonly observed in old cerebral extravasations of any sort, owing, as Virchow long ago showed, to the presence of hematoidin crystals.

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[3] Beaumont Corroborated, Current Comment, J. A. M. A. **84**: 1276 (April 25) 1925.

[4] Where Are the Bile Pigments Formed? editorial, J. A. M. A. **81**: 2116 (Dec. 22) 1923; The Reaction of the Bile and Gallstone Formation, ibid. **82**: 1127 (April 5) 1924; Origin of the Bile Salts, ibid. **83**: 444 (Aug. 9) 1924; Formation of Bile Pigment Without the Liver, ibid. **83**: 534 (Aug. 16) 1924.

[5] Mann, F. C.; Sheard, C. H., and Bollman, J. L.: Studies on the Physiology of the Liver, XI, The Extrahepatic Formation of Bilirubin, Am. J. Physiol. **74**: 49 (Sept.) 1925.

[6] Putnam, T. J., and Cushing, Harvey: Chronic Subdural Hematoma, Arch. Surg. **11**: 329 (Sept.) 1925.

Current Comment

PIGMENTED MOLES

Among the most important and most difficult aspects of a practitioner's work are such little lesions as the nevi. Frequently the physician must decide whether or not a pigmented mole is malignant or benign; and if benign, whether or not it is likely to assume malignancy. The melanin forming cells, specific in their function, are called melanoblasts. These melanoblasts are able to produce pigment and to give rise to other cells of their own nature. They lie in the basal cell layer of the rete malpighii and can produce pigment in response to any adequate stimulus. The production of a nevus involves the departure of these cells from their original epithelial nature and their migration into the corium. This phenomenon may occur anywhere in the body but is found more often on the face and neck, perhaps because of the likelihood there of irritation. Since the cells, after migration, are still capable of producing melanin, they may, after a period of slow growth, become quiescent, or they may undergo malignant change. In those nevi which remain benign, the regression that takes place is a fibrosis. This does not mean, however, that all benign moles will remain macular, become less noticeable and fade in color. Some of them may become warty, nodular and mamillated. The size or contour of the nevus, then, is not in itself an indication of safety or of danger. A complete study of melanomas [1] has just been issued as a monograph, forming a single issue of a foreign periodical. Dr. James W. Dawson there indicates the significant signs in a mole that is undergoing malignant change. Increased vascularity and pigmentation, or superficial ulceration with periods of bleeding and subjective symptoms, are signals of warning. A history of trauma or mechanical irritation is usually obtained in such cases and is not to be taken lightly. Such history and signs justify wide extirpation, and a microscopic study of the tissue removed will show pigmentation and proliferation beyond the area in which pigmentation can be detected by the naked eye. If the extirpation is not sufficiently wide, not only has pathologic tissue been left in situ, but also more harm than good may have been done by opening channels of metastasis into subepidermal layers or into the lymphatic nodes of adjacent regions. Should the lymph nodes be involved, Pringle advises "excision of the tumor, with a good zone of healthy skin around it and a somewhat larger zone of the underlying deep fascia, up to and including the nearest anatomical group of glands at least; and all that is removed should be, in one continuous strip as far as possible."

LOWERED BASAL METABOLISM AND THE PULSE

The existence of a proportionality between the pulse rate and the level of metabolism has been recognized for some time. It has been suggested that the pulse rate multiplied by the pulse pressure may be an even better indicator of the metabolic level than the rate alone. We must emphasize the fact, Du Bois [1] writes, that the pulse rate is a symptom of major importance and should be studied frequently when the patient is at complete rest. Only a rash clinician disregards its warnings. Despite the cogent demonstration that in such diseases as exophthalmic goiter, leukemia and myxedema the basal metabolism and pulse rate go hand in hand, it must be recognized also that the rate of the heart beat is easily influenced by extraneous factors, especially the emotions. The presence of bile salts in the circulation is a chemical influence in the direction of bradycardia. Enlargement of the heart, such as attends certain infections, also affects its rate. It has long been observed that the febrile periods of certain acute infections are sometimes succeeded by a postinfectious period of slow pulse. Schick and Cohen [2] of the Mount Sinai Hospital in New York have just demonstrated that this is also attended with a low metabolism, and is due to the latter rather than to some special factor, such as stimulation of the vagus that inhibits the heart. Schick and Cohen believe that the lowered postinfectious metabolism is caused by a more or less generalized cellular damage which, at times, hits the endocrine glands especially. Only toxic cases seem to have the lowered type of metabolism. The union of laboratory and clinical facts thus demonstrates the "interrelated trinity of pulse, temperature and metabolism, to which we can add respiration."

OUTPUT OF THE HEART IN HEART DISEASE

In a recent issue of The Journal,[3] in which attention was directed to some new and outstanding features of the circulation, reference was made to Henderson and Haggard's estimate that the blood stream pumped by the heart is about twice as large as was formerly supposed. An excellent heart stroke volume along with an augmented pulse rate provides for an effective oxygen supply even in periods of vigorous demand such as muscular exercise occasions. The quickened circulation furnishes a volume of blood so large in relation to the oxygen consumption of the body that the oxygen content of the venous blood

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[1] Dawson, J. W.: The Melanomata, Their Morphology and Histogenesis, Edinburgh M. J. 32: 501-732 (Oct.) 1925.

[1] Du Bois, E. F.: Basal Metabolism in Health and Disease, Philadelphia, Lea & Febiger, 1924.

[2] Schick, Béla; and Cohen, Philip: Lowered Basal Metabolism in Postinfectious Stages and in Diseases Characterized by Slow Pulse Rate, Am. J. Dis. Child. 30: 291 (Sept.) 1925.

[3] Some Fundamental Features of the Circulation, editorial, J. A. M. A. 85: 1138 (Oct. 10) 1925.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—Dr. Harry Spiro addressed the San Francisco County Medical Society, October 14, on "Modern Diagnosis and Treatment of Heart Disease," and Dr. Ernst Gehrels on "Gastric Surgery." The October number of *California and Western Medicine* publishes a list of about two pages of the names of physicians, and the subjects on which they have volunteered to speak in the extension service of the state medical society.

Gertrude Steele, Naturopath, Wanted for Manslaughter.—The *Police Bulletin*, Oct. 13, 1925, from Los Angeles, reports that Gertrude Steele, "Naturopath," under indictment for manslaughter, is "wanted." In February, 1920, THE JOURNAL recorded that Gertrude Steele had been charged with manslaughter following the death of a "patient" who died in the process of being "beautified." THE JOURNAL in April, 1921, reported that the same woman had had her license revoked by the board of medical examiners. In the issue of Nov. 1, 1924, THE JOURNAL recorded a warning issued by Dr. Charles B. Pinkham, executive officer of the state board of medical examiners, against Gertrude Steele, in which it was stated that although the woman's license had been revoked in 1921, she was still operating. THE JOURNAL for Nov. 29, 1924, stated that Gertrude Steele had been indicted but had not been apprehended, and it was said she had gone to Canada. It was recorded further that a suit for $5,000 against Mrs. Steele had been filed by another victim who claimed to have been permanently disfigured, and a judgment for nearly $3,000 against Mrs. Steele had been given another victim, also alleged to have been permanently disfigured. In February of this year THE JOURNAL recorded that Gertrude Steele had been located in Oberhausen, Germany. The files show that this notorious quack has for years advertised in the Los Angeles *Times*, advertisements appearing as late as January, 1924.

COLORADO

Society News.—The Colorado State Medical Society, at its fifty-fifth annual session at Colorado Springs, conducted an historical exhibit in addition to commercial and scientific exhibits; subjects were assigned to certain counties. According to the president-elect, Dr. George A. Boyd, Colorado Springs, this is the first attempt at an historical exhibit by a state society.

DELAWARE

County Society Prosecutes Chiropractor.—Following the institution of a suit brought by Chiropractor O. M. Heimark against a patient for nonpayment of a bill, the Kent County Medical Society engaged the services of an attorney to prosecute Heimark for practicing medicine without a license, and the state medical society at its annual meeting adopted a resolution approving the Kent County Medical Society's action and offering any financial aid that may be necessary.

State Medical Election.—At the annual meeting of the Medical Society of Delaware, Wilmington, October 13-14, Drs. Olin S. Allen and Richard C. Beebe were nominated vice presidents; Dr. William O. LaMotte, secretary, and Samuel C. Rumford, treasurer. The new president is Dr. John B. Derrickson, Frederica. The nominating committee selected the following names to be submitted to the governor for his selection of two members of the medical examining board: Drs. Henry W. Briggs, William Wertenbaker, Harold L. Springer, George F. Jones, Joseph S. McDaniel, Joseph Bringhurst, Luther S. Conwell, Jerome D. Niles, Joseph W. Bastian and Joseph K. Frame. The next annual meeting will be in Dover in October, 1926.

DISTRICT OF COLUMBIA

Washington's Negro Health Problem.—A special meeting of the directors of the Washington Tuberculosis Association was held in October to consider the death rate among negroes from tuberculosis, which in the last five years has averaged almost five times as high a rate as that of the white population. Among those in attendance were Dr. George M. Kober, president; Dr. Joseph A. Murphy, chief sanitary inspector of the public schools; Dr. Frederick C. Smith, representing the U. S. Public Health Service and Dr. Harvey W. Wiley, formerly chief chemist, U. S. Department of Agriculture. It was shown that there was a rapid decline in the colored tuberculosis death rate in the period 1915-1920, but that from 1920 to 1925 there had been no decline. Plans are being made now to examine and follow up every child entering the schools, to extend the nutrition clinics up to the eighth grade in the public schools, to supply help for more of the open window classes, to renew efforts to establish a sanatorium for tuberculous children, and to extend the plan of educating and examining adult workers in industry.

GEORGIA

Hospital News.—The new $275,000 hospital at Fort Benning, Columbus, has been opened. It has a capacity of 102 beds.——The Central of Georgia Railway will build a sixty-bed hospital for employees at Savannah under the supervision of Dr. Craig Barrow.

State Board Election.—At a meeting of the state board of medical examiners at the Piedmont Hotel, Atlanta, October 13, Dr. Clarence M. Paine, Atlanta, was elected vice president; the other officers were reelected; Dr. Jarrett W. Palmer, Ailey, is president, and Dr. Charles T. Nolan, Marietta, secretary-treasurer.

ILLINOIS

Unlicensed Chiropractors.—Five chiropractors were tried in circuit court at Benton, recently, on charges of illegal practice; they were, it is reported, Howard C. Gott and Arthur Coleman, Christopher; Thomas E. Shaw, Benton, and Thomas Heaney and Margaret C. Heaney, Zeigler.

Personal.—Dr. Clyde H. Cable, South Bend, Ind., has been appointed superintendent of the McDonough County Tuberculosis Sanatorium at Bushnell.——Dr. Victor H. Bassett, health officer of Savannah, Ga., has been appointed health officer of the Quincy public health district, Quincy.——Dr. Emil A. Edlen, city physician of Moline, has been elected president of the Moline Public Hospital staff, Dr. Henry S. Bennett, vice president, and Dr. Florence E. Bollaert, secretary.

Cancer Now in Second Place.—The state department of health reports in *Illinois Health News* that there were thirteen diseases, which caused at least 1,000 deaths, in Illinois in 1924. As in the previous year, heart disease was first, but it showed no increase during 1924, and the rate dropped slightly Cancer, however, moved from fourth place in 1923 to second place among the leading causes of death, partly the result, it is said, of the sharp decline last year in deaths from pneumonia. In 1902, cancer was the cause of 2,542 deaths in Illinois and last year of 6,960, the rates per hundred thousand population being fifty-one and 101, respectively. Violence has become one of the chief mortality problems in Illinois, it was third on the list. Violence, including accidents of all kinds, suicide and homicide, caused 6,867 deaths, and more than 55 per cent. of the victims were between 25 and 50 years of age; nearly one out of every five deaths among people in the state between these ages was due to violence, and the automobile is the chief factor; next, accidental falls, and then railroads. Suicides increased from 886 in 1923 to 1,012, and murders from 709 to 821. Chronic nephritis moved up from fifth to fourth place, and cerebral hemorrhage up to fifth. Pneumonia dropped from second to sixth place (not significant, since it varies so much from year to year), and tuberculosis dropped from sixth to seventh place. About 80 per cent. of the deaths from heart disease were among people more than 50 years of age, and about 75 per cent. of them were more than 60 years of age. Deaths from diabetes were fewer by 128 than in the year before.

Chicago

Hospital News.—A $2,500,000 addition to Cook County Hospital is being planned.——The social service department of the woman's board of St. Luke's Hospital will give its third annual charity ball in the Gold Room at the Congress Hotel, November 13.

Liquor Permits Revoked.—It is reported that the liquor permits of Dr. Samuel S. Epstein, 803 Roosevelt Road, Chicago, and Dr. Roy Griffy, Oblong, Ill., and those of the Raynor Pharmacal Company, 140 West Van Buren Street, and returned to the heart is surprisingly little below that of the freshly oxygenated arterial supply. In cardiac disease, however, this efficiency may break down, the inefficiency of the circulation showing itself by the increase in arteriovenous oxygen difference above the normal value. Henderson and Haggard[4] found this to be due, in a few patients studied by them, to the smaller "stroke volumes," as they describe the fraction of a liter of blood that each ventricle discharges in one beat. As the pulse rate is generally increased in cases of heart failure, it appears reasonable to infer that the oft noted slowing of the circulation is due to a greater relative decrease in the output per beat. In the evidence collected by Rabinowitch[5] at the Montreal General Hospital, marked and consistent differences were noted between the values in the normal persons and the pathologic cases of various heart lesions, associated with heart failure. Thus the average ventricular output of blood per beat in ten normal persons at rest and without any clinical signs of heart failure was 85.3 c.c., with maximal and minimal values of 99.5 and 70.1 c.c., respectively. In heart failure the figures ranged from 13.6 to 46.2 c.c., with an average output—if these data can properly be averaged—of 27 c.c. One can therefore well understand why such patients are "out of breath" from a degree of physical exertion, and demand for oxygen, that in normal persons involves no considerable decrease of the partial pressure in the tissues.

Association News

REDUCTION OF MEDICAL TAXES

Representatives of Association Appear Before Ways and Means Committee

At a hearing before the Committee on Ways and Means of the House of Representatives held at Washington, October 21, a presentation of reasons was made for the reduction of the existing war tax on physicians under the Harrison Narcotic Law. The American Medical Association was represented at the hearing by Dr. Charles W. Richardson, Washington, D. C., member of the Board of Trustees, and by Dr. William C. Woodward, Chicago, executive secretary, Bureau of Legal Medicine and Legislation.

Dr. Richardson pointed out to the committee that prior to the war the federal tax or fee paid by physicians for a license under the Harrison Narcotic Law was one dollar. He said that the medical profession of the country gladly accepted the increased war tax of three dollars and that the profession did everything in its power to make the law effective. He said that, as many of the war taxes are being removed, this increased tax against physicians should now in justice be restored to the rate existing prior to the war.

Dr. Woodward stated that it is clearly a question of whether Congress will or will not reduce a war tax; that the present rate of three dollars was effected by the Revenue Act of 1918 along with other increases; that these other increases have, to a large extent, been removed or reduced.

"For a number of years," said Dr. Woodward, "the tax derived from physicians under the narcotic act was nearly a half million dollars greater than the expenses of enforcing the act. Obviously, that was as it should be if one were dealing with a measure intending to raise revenue. Recently, however, the plea was made that inasmuch as approximately half a million dollars a year was being collected under the law, therefore the appropriation should be increased so as to permit the use of the entire amount for enforcing the law. That argument was accepted and an increased appropriation of half a million dollars was made. So it is not fair to take the cost of enforcing the law and fix the tax on that basis."

Representative W. R. Green, chairman of the committee, made the significant remark, "I suppose you are inclined to think that in any event the burden of enforcing the law ought to be on the whole public and not on the medical profession." The remark of Chairman Green may be regarded as the crux of this proposed tax reduction. The enforcement of the law is clearly an expense which should be borne by the public generally and not by the medical profession alone. Under no conditions can it be claimed that the enforcement of a general federal statute should be paid for exclusively by any class or any profession.

Drs. Richardson and Woodward also presented two proposed amendments to the existing federal income tax law: first, authority to deduct expenses incurred in attending meetings of scientific and professional organizations; and second, expenses of postgraduate study.

Dr. Richardson stated that, in the revenue acts of 1921 and 1924, exemptions are permitted to all trades, industries and mercantile organizations that send their representatives to various parts of the country. Dr. Woodward argued that the medical profession should be entitled to the same privilege, which has been denied to physicians under rulings of the Commissioner of Internal Revenue. The extent to which physicians are members of medical organizations and attend their meetings was shown by Dr. Woodward. He stated that inquiries were addressed to ninety-eight medical organizations, and seventy-seven of these reported their membership. The total membership of these seventy-seven medical organizations was 177,219. He stated that the estimated cost of attendance was $1,718,000. On a 4 per cent. basis the tax amounted to $68,726, which is a very conservative estimate of the federal taxes paid by the medical profession under this particular section of the law because of the adverse rulings of the Commissioner of Internal Revenue.

The Committee on Ways and Means will continue to hold hearings for a considerable time, and will then go into executive session for the purpose of drafting the new federal tax bill to be considered at the December session of Congress.

THE DALLAS SESSION

Plans for the Scientific Exhibit

The Committee on Scientific Exhibit calls attention to the fact that those who expect to exhibit at the Dallas session should begin making arrangements sooner than usual, as it will occur the middle of April. Plans for the Scientific Exhibit and Motion Picture Theater Program are under way; as soon as the details have been formulated, further announcement will be made in THE JOURNAL. The circular letter and application blank for the Scientific Exhibit, 1926, will be sent out in about six weeks. Any who desire to receive these should send their names and addresses to Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

Physician and Social Service Worker.—The physician is in charge of the patient; it is his responsibility to diagnose the disease and to prescribe treatment. He is the head of the unit organized for the benefit of the patient; the social worker is a part of his unit. Working with the physician, fitting her specific qualities into the plan of action, her work reaches its greatest usefulness to the patient. Working alone, touching the physician only casually, she cannot function to the best advantage. It is therefore highly important that for the exercise of her primary duty "to further restoration and maintenance of health" she work under the immediate direction of the physician. It is equally important that the physician outline the principles for the social worker to follow.—*Hosp. Social Service* **12**:137 (Sept.) 1925.

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[4] Henderson, Yandell; and Haggard, H. W.: The Circulation and Its Measurement, Am. J. Physiol. **73**: 193 (June) 1925.

[5] Rabinowitch, I. M.: The Output of the Heart per Beat in Heart Disease, Arch. Int. Med. **36**: 239 (Aug.) 1925.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—Dr. Harry Spiro addressed the San Francisco County Medical Society, October 14, on "Modern Diagnosis and Treatment of Heart Disease," and Dr. Ernst Gehrels on "Gastric Surgery." The October number of *California and Western Medicine* publishes a list of about two pages of the names of physicians, and the subjects on which they have volunteered to speak in the extension service of the state medical society.

Gertrude Steele, Naturopath, Wanted for Manslaughter.—The *Police Bulletin*, Oct. 13, 1925, from Los Angeles, reports that Gertrude Steele, "Naturopath," under indictment for manslaughter, is "wanted." In February, 1920, THE JOURNAL recorded that Gertrude Steele had been charged with manslaughter following the death of a "patient" who died in the process of being "beautified." THE JOURNAL in April, 1921, reported that the same woman had had her license revoked by the board of medical examiners. In the issue of Nov. 1, 1924, THE JOURNAL recorded a warning issued by Dr. Charles B. Pinkham, executive officer of the state board of medical examiners, against Gertrude Steele, in which it was stated that although the woman's license had been revoked in 1921, she was still operating. THE JOURNAL for Nov. 29, 1924, stated that Gertrude Steele had been indicted but had not been apprehended, and it was said she had gone to Canada. It was recorded further that a suit for $5,000 against Mrs. Steele had been filed by another victim who claimed to have been permanently disfigured, and a judgment for nearly $3,000 against Mrs. Steele had been given another victim, also alleged to have been permanently disfigured. In February of this year THE JOURNAL recorded that Gertrude Steele had been located in Oberhausen, Germany. The files show that this notorious quack has for years advertised in the Los Angeles *Times*, advertisements appearing as late as January, 1924.

COLORADO

Society News.—The Colorado State Medical Society, at its fifty-fifth annual session at Colorado Springs, conducted an historical exhibit in addition to commercial and scientific exhibits; subjects were assigned to certain counties. According to the president-elect, Dr. George A. Boyd, Colorado Springs, this is the first attempt at an historical exhibit by a state society.

DELAWARE

County Society Prosecutes Chiropractor.—Following the institution of a suit brought by Chiropractor O. M. Heimark against a patient for nonpayment of a bill, the Kent County Medical Society engaged the services of an attorney to prosecute Heimark for practicing medicine without a license, and the state medical society at its annual meeting adopted a resolution approving the Kent County Medical Society's action and offering any financial aid that may be necessary.

State Medical Election.—At the annual meeting of the Medical Society of Delaware, Wilmington, October 13-14, Drs. Olin S. Allen and Richard C. Beebe were nominated vice presidents; Dr. William O. LaMotte, secretary, and Samuel C. Rumford, treasurer. The new president is Dr. John B. Derrickson, Frederica. The nominating committee selected the following names to be submitted to the governor for his selection of two members of the medical examining board: Drs. Henry W. Briggs, William Wertenbaker, Harold L. Springer, George F. Jones, Joseph S. McDaniel, Joseph Bringhurst, Luther S. Conwell, Jerome D. Niles, Joseph W. Bastian and Joseph K. Frame. The next annual meeting will be in Dover in October, 1926.

DISTRICT OF COLUMBIA

Washington's Negro Health Problem.—A special meeting of the directors of the Washington Tuberculosis Association was held in October to consider the death rate among negroes from tuberculosis, which in the last five years has averaged almost five times as high a rate as that of the white population. Among those in attendance were Dr. George M. Kober, president; Dr. Joseph A. Murphy, chief sanitary inspector of the public schools; Dr. Frederick C. Smith, representing the U. S. Public Health Service and Dr. Harvey W. Wiley, formerly chief chemist, U. S. Department of Agriculture. It was shown that there was a rapid decline in the colored tuberculosis death rate in the period 1915-1920, but that from 1920 to 1925 there had been no decline. Plans are being made now to examine and follow up every child entering the schools, to extend the nutrition clinics up to the eighth grade in the public schools, to supply help for more of the open window classes, to renew efforts to establish a sanatorium for tuberculous children, and to extend the plan of educating and examining adult workers in industry.

GEORGIA

Hospital News.—The new $275,000 hospital at Fort Benning, Columbus, has been opened. It has a capacity of 102 beds.——The Central of Georgia Railway will build a sixty-bed hospital for employees at Savannah under the supervision of Dr. Craig Barrow.

State Board Election.—At a meeting of the state board of medical examiners at the Piedmont Hotel, Atlanta, October 13, Dr. Clarence M. Paine, Atlanta, was elected vice president; the other officers were reelected; Dr. Jarrett W. Palmer, Ailey, is president, and Dr. Charles T. Nolan, Marietta, secretary-treasurer.

ILLINOIS

Unlicensed Chiropractors.—Five chiropractors were tried in circuit court at Benton, recently, on charges of illegal practice; they were, it is reported, Howard C. Gott and Arthur Coleman, Christopher; Thomas E. Shaw, Benton, and Thomas Heaney and Margaret C. Heaney, Zeigler.

Personal.—Dr. Clyde H. Cable, South Bend, Ind., has been appointed superintendent of the McDonough County Tuberculosis Sanatorium at Bushnell.——Dr. Victor H. Bassett, health officer of Savannah, Ga., has been appointed health officer of the Quincy public health district, Quincy.——Dr. Emil A. Edlen, city physician of Moline, has been elected president of the Moline Public Hospital staff, Dr. Henry S. Bennett, vice president, and Dr. Florence E. Bollaert, secretary.

Cancer Now in Second Place.—The state department of health reports in *Illinois Health News* that there were thirteen diseases, which caused at least 1,000 deaths, in Illinois in 1924. As in the previous year, heart disease was first, but it showed no increase during 1924, and the rate dropped slightly Cancer, however, moved from fourth place in 1923 to second place among the leading causes of death, partly the result, it is said, of the sharp decline last year in deaths from pneumonia. In 1902, cancer was the cause of 2,542 deaths in Illinois and last year of 6,960, the rates per hundred thousand population being fifty-one and 101, respectively. Violence has become one of the chief mortality problems in Illinois, it was third on the list. Violence, including accidents of all kinds, suicide and homicide, caused 6,867 deaths, and more than 55 per cent. of the victims were between 25 and 50 years of age; nearly one out of every five deaths among people in the state between these ages was due to violence, and the automobile is the chief factor; next, accidental falls, and then railroads. Suicides increased from 886 in 1923 to 1,012, and murders from 709 to 821. Chronic nephritis moved up from fifth to fourth place, and cerebral hemorrhage up to fifth. Pneumonia dropped from second to sixth place (not significant, since it varies so much from year to year), and tuberculosis dropped from sixth to seventh place. About 80 per cent. of the deaths from heart disease were among people more than 50 years of age, and about 75 per cent. of them were more than 60 years of age. Deaths from diabetes were fewer by 128 than in the year before.

Chicago

Hospital News.—A $2,500,000 addition to Cook County Hospital is being planned.——The social service department of the woman's board of St. Luke's Hospital will give its third annual charity ball in the Gold Room at the Congress Hotel, November 13.

Liquor Permits Revoked.—It is reported that the liquor permits of Dr. Samuel S. Epstein, 803 Roosevelt Road, Chicago, and Dr. Roy Griffy, Oblong, Ill., and those of the Raynor Pharmacal Company, 140 West Van Buren Street, and the Blaine Manor Pharmacy, 4833 North Talman Avenue, were revoked, October 26, by the prohibition director.

Lectures for Nurses.—The Chicago Tuberculosis Institute's annual lectures for nurses began October 21; lectures will be given in various sections of the city until December 16; among the lecturers will be Dr. Daniel P. MacMillan, director of child study of the board of education; Dr. Ethan Allen Gray, medical director of the Chicago Fresh Air Hospital; Dr. Hiram H. Bay of the Chicago Tuberculosis Institute; Dr. Max Biesenthal; Dr. John M. Dodson of the American Medical Association; Dr. Walter W. Hamburger; Dr. Harrold A. Bachmann and Dr. John Leonard Manning.

Resolution on Free Medical Service.—The council of the Chicago Medical Society, at a meeting, October 13, adopted a resolution concerning free medical service, a copy of which will be forwarded to all hospitals and social agencies and health departments in the city. The council held that the Chicago Medical Society should take the initiative in defining medical charity and approved free medical service to all persons who receive charity of any other kind or description. The council, however, views with alarm the tendency of hospitals, social agencies and health departments to pauperize the public by giving free service to those who can afford to pay even a part of the usual fee, and concluded that members of the Chicago Medical Society who aid such institutions in pauperizing the public may be brought before the ethical relations committee.

Personal.—Dr. Frank R. Guido won second place in Part I in September, 1923, and first place in Part II in February, 1925, it is reported, in the National Board of Medical Examiners examination. Dr. Guido took the first two years of his medical course at Loyola University School of Medicine, and the other years at Rush Medical College.——Dr. Daniel P. MacMillan, director of the Child Study Bureau and examiner of teachers, Chicago Board of Education, addressed a meeting of physicians, October 23, at the Logan Square Masonic Temple, preparatory to the coming health pageant to be conducted under the auspices of the Northwest Branch of the Chicago Medical Society. His subject was "Uncared for, Handicapped Children."——Dr. Charles F. Read, formerly superintendent of the Chicago State Hospital, has been appointed head of the department of nervous and mental diseases, Loyola University Medical School.——Dr. Paul R. Cannon has been appointed assistant professor in pathology at the University of Chicago.——Dr. Karl A. Meyer has been appointed to a professorship of clinical surgery at the University of Illinois.

INDIANA

Hospital News.—The City Hospital, Indianapolis, has let the contract for the construction of a $234,000 surgical unit. ——The new $750,000 wing of St. Margaret's Hospital, Hammond, having a capacity of 325 beds, has been dedicated.——The commissioners of Miami County have agreed to take over and operate the Miami County Hospital, Peru, as a county institution.

Society News.—Elmer V. McCollum, Ph.D., professor of biochemistry, Johns Hopkins University School of Hygiene and Public Health, Baltimore, addressed the Marion County Medical Society, Indianapolis, October 13, following a dinner in his honor.——Dr. Edward C. Kendall, head of the chemical division of the Mayo Foundation for Medical Education and Research of the University of Minnesota, Minneapolis, addressed the Indianapolis section of the American Chemical Society, October 9, on "The Chemistry of the Thyroid Gland and Its Relation to Oxidation."——Dr. John L. Tierney, St. Louis, addressed the Seventh District Medical Society, Martinsville, October 28, on "A Consideration of Cardiovascular Renal Diseases."

IOWA

Society News.—Dr. Paul A. O'Leary of the Mayo Clinic, Rochester, Minn., addressed a joint meeting of the Scott and Rock Island County medical societies at Davenport, October 6, on "The Treatment of Syphilis," illustrated by lantern slides.——Among the speakers at the state conference on social work, Iowa City, October 23, were Dr. William A. Evans, Chicago; Dr. Fred M. Smith of the University of Iowa Medical Faculty; Dr. Matthew U. Chesire, Marshalltown, and Dr. Don M. Griswold, state health commissioner. ——Dr. Thomas F. Beveridge, Muscatine, has been elected president of the Southeastern Iowa Medical Society; Dr. John P. Mathias, Mediapolis, vice president, and Dr. Daniel F. Huston, Burlington, secretary.

KENTUCKY

Hospital News.—The Ashland General Hospital, Ashland, has been taken over by the Baptist Church.——Elmwood, Lexington, which has been operated as a sanatorium by Dr. Charles A. Nevitt, has been tendered to the U. S. Public Health Service for use as a trachoma hospital and will be purchased, according to *Hospital Management*, for that purpose in January.

Funds for Crippled Children.—The Kentucky Society for Crippled Children is conducting a campaign to raise $36,000. This society was organized about three years ago and largely through its influence the legislature created a Crippled Children Commission last year and appropriated $10,000 a year for two years. This sum has been found inadequate for the amount of work to be done. Last summer in twelve clinics for crippled children in various parts of the state, about 800 children were examined, and after treatment in hospitals more than 100 of them have been restored.

Policy of State Journal.—The council of the Kentucky State Medical Association reported to the House of Delegates at the annual meeting in Louisville that the net balance, September 1, was $4,996.07 as compared with $1,667.67 on the same date last year. The income from the *Kentucky Medical Journal* was $7,477.22 and the expense of its production $6,660.07. The policy of the state journal for many years has been to publish all papers read at county medical societies. The council recommended that this custom be continued at whatever cost but that the house of delegates determine whether the state journal should publish only such material as the council would select.

LOUISIANA

Hearings for Failure to Report Narcotics.—About twenty-seven physicians and nine druggists were summoned to appear before the state board of health, October 13, to explain their failure to report instances in which they are alleged to have prescribed narcotics. The hearings were in executive session, in accordance with provisions of the state laws.

Mosquito Control Conference.—At the Tri-State Conference on Mosquito Control, New Orleans, October 14, a permanent committee was appointed charged with making a survey of the mosquito situation in Alabama, Mississippi and Louisiana, and Mayor Kennedy of Biloxi was elected chairman. The cost of the survey will be borne by the coast towns and cities. There were about 100 representatives present at the conference, as well as members of the state board of health of Louisiana.

Personal.—Dr. Earl Z. Browne, an assistant professor, Tulane University of Louisiana School of Medicine, has resigned to take up medical missionary work in Mexico.——William A. Danner, secretary of the American Mission to Lepers, has sailed, according to the *Times-Picayune*, on a tour round the world to enlist the cooperation of governments in a general campaign to eradicate leprosy.——Dr. Paul J. Gelpi, Jr., has been elected president of the visiting staff of Charity Hospital, New Orleans; Dr. Jerome E. Landry, vice president, and Dr. Lucien A. Ledoux, secretary-treasurer.

Milk Ordinance Disapproved by State Board.—The milk ordinance of New Orleans, which is to become effective, Jan. 1, 1926, was disapproved at the quarterly meeting of the state board of health, October 12, the bacterial standard having been considered insufficient. The ordinance provides for the bacterial count of 100,000 for Grade A raw milk and permits a maximum count of 1,000,000 for Grade C raw milk and 500,000 for Grade C pasteurized milk. The state board tentatively adopted at this meeting a regulation requiring a bacterial count of 10,000 for certified milk, 50,000 for special raw milk, and 20,000 for special pasteurized milk. This measure will be tried out for two months, when the board will finally pass on it. The assistant state attorney general has held that cities cannot adopt health measures that conflict with the state sanitary code. They may adopt an ordinance more strict than state requirements but none that require less.

MARYLAND

Medical and Chirurgical Faculty Meeting.—The semiannual meeting of this society will be at Frederick, November 3-4. Dr. George H. Riggs, president, Frederick County Medical Society, will give the address of welcome at a dinner at the Francis Scott Key Hotel, and the response will be delivered by the president of the faculty, Dr. Lewellys F. Barker, Baltimore. Among the speakers at the scientific session will be Dr. Adolf Meyer, director, Henry Phipps Psychiatric Clinic, Baltimore; Dr. Guy L. Hunner, Johns Hopkins Hospital; Dr. Elmer C. Kefauver, county health officer of Frederick County, and Drs. John E. Legge and George Linthicum, Baltimore.

MASSACHUSETTS

Appointments at Tufts College Medical School.—Dr. Charles F. Painter has been appointed head of the department of the history of medicine at Tufts College Medical School, and Dr. Mark H. Rogers, head of the department of orthopedic surgery. This school opened, September 16, with a freshman class of 146 chosen from more than 600 applicants for admission. The total registration was 490. Dr. James S. Stone, president of the Massachusetts Medical Society, gave an address at the reception given by the faculty to the freshman class, September 28.

Dr. Cushing Lectures in Edinburgh.—Dr. Harvey Cushing, professor of surgery, Harvard University Medical School, Boston, delivered the Cameron-Prize Lectures at the University of Edinburgh the week of October 18, his subjects being: (1) "The Third Circulation"; (2) "The Glandula Pituitaria as We Now Know It," and (3) "Intracranial Tumors and the Surgeon." Among others who have delivered the Cameron-Prize Lectures were Monsieur Pasteur, 1889; Sir Joseph Lister, 1890; Professor Behring, 1895; Major David Bruce, R. A. M. C., 1899; Patrick Manson, 1901; Sir Ronald Ross, 1902; Professor Finsen, 1904; Dr. Simon Flexner, 1911; Paul Ehrlich, 1914; J. J. B. V. Bordet, 1921, and Prof. John J. R. Macleod, 1923.

Society News.—Dr. Francis D. Donoghue, medical adviser, Industrial Accident Board, State House, Boston, addressed the clinical staff of the Boston Dispensary, October 20, on "Industrial Accident and Health Activities."——Dr. John J. Moorhead, professor and director of traumatic surgery, New York Post-Graduate Medical School and Hospital, New York, addressed the Berkshire District Medical Society at Pittsfield on "Treatment of Some Minor Injuries."——Dr. Harlan L. Paine entertained the Worcester District Medical Society at the Grafton State Hospital, North Grafton, October 14. Allan W. Rowe, Ph.D., addressed the society on "Differential Diagnosis of Endocrine Disorders from an Objective Standpoint."——Dr. Edward O'Keefe addressed the North Shore Medical Fraternity at Lynn, October 20, on "Eczema in Infants and Its Dietary Treatment."

MICHIGAN

Tuberculosis Survey.—A section of the city of Detroit was selected a year ago in which to apply all the known reputable means of fighting tuberculosis. The experiment was suggested by the Framingham, Mass., survey, and the Detroit Community Fund appropriated $25,000 for the work last year and will appropriate a like sum for the coming year. There are 101 cases of tuberculosis in this district of the city, exclusive of those under the care of private physicians. Fifty of these cases were discovered by the survey in persons who did not know they had tuberculosis. There are now 578 persons in connection with this work under supervision, and a full-time physician will be assigned, November 1. Dr. Burt R. Shurly, Dr. Fred M. Meader and Henry F. Vaughan, D.P.H., are members of the committee directing the experiment. The object of the investigation, the *Bulletin of the Wayne County Medical Society* says, is to learn just what part a man's health, a man's job and a man's recreation has to do with tuberculosis, and then attempt to make correction.

MINNESOTA

Malignant Smallpox Epidemic Ends.—The secretary of the state board of health recently reported that there had not been a case of malignant smallpox in the state for a month; he attributed this to the state-wide vaccination campaign brought on by the epidemic of smallpox, in which from January, 1924, to September, 1925, there were more than 4,000 cases and 503 deaths; of these, 1,936 were of the malignant type and among them 492 deaths.

Society News.—Dr. Charles Eugene Riggs addressed the Minnesota Academy of Medicine, Minneapolis, October 21, at the Town and Country Club on "The Dynamics of Personality."——Albert P. Mathews, Ph.D., professor and head of the department of biochemistry, University of Cincinnati College of Medicine, addressed the Minneapolis District Dental Society, October 21, on "The Calcium Metabolism of the Body."——Dr. Herman G. Franzen addressed the Hennepin County Medical Society, October 21, on "The Clinical Aspect of Superficial Tumors."

MISSOURI

Hospital for Negro Children.—Mr. William Volker and Mr. Frank C. Niles, Kansas City, have donated $65,000 to erect an addition to the Wheatley-Provident Hospital for ill and crippled negro children. The Wheatley-Provident Hospital, which has been in operation since March, 1922, through a gift of Mr. Niles, is conducted largely in connection with the Children's Mercy Hospital. The staff of the new hospital for negro children probably will be negro physicians.

Society News.—The Jackson County Medical Society, Kansas City, held a symposium on diabetes mellitus, October 20; the speakers were Drs. Russell L. Haden, Frederick C. Narr, Ralph H. Major, Benjamin L. Myers, Joseph S. Lichtenberg, Paul M. Krall and Donald R. Black.——Dr. Frankwood E. Williams, medical director, National Committee for Mental Hygiene, lectured in Kansas City, October 23, on "Mental Hygiene and the Day's Work."——Charles-Edward A. Winslow, D.P.H., Yale University, addressed the St. Louis Medical Society, October 20, on "Social Hygiene: A Program for Community Health." Dr. James M. Ball, Jr., will address the society, November 3, on "Resurrection Days: An Historical Epitome of Certain Events in Old English Medicine."——Dr. Jonas Curtis Lyter, St. Louis, will address the Kansas City Academy of Medicine, November 27, on "Experimental and Clinical Aspects of Certain Lung Conditions."

NEW YORK

Hospital News.—Work has been started on a new $250,000 preventorium for children on the grounds of the Nassau County Sanatorium, Farmingdale, N. Y. When completed it will accommodate seventy children.——A completely equipped health center for mothers and children was opened at Fulton, Oswego County, October 9, which will be conducted by a committee representing the Fulton Academy of Medicine, the Fulton Health Department and the local child welfare association.

Society News.—Dr. Frank D. Jennings addressed the Society of the County of Queens, September 29, on "Graduate Medical Instruction," and Dr. Walter J. Highman on "Common Sense in the Management of Syphilis."——Dr. Nathan B. Van Etten, president of the Medical Society of the State of New York, addressed the eighty-first regular meeting of the Associated Physicians of Long Island, October 13.——Dr. Ignatius L. Stein assumed the duties of president of the Long Island City Medical Society at the meeting, October 8; Dr. William J. Lavelle was elected vice president, and Dr. Mandel H. Weinstein, secretary-treasurer, reelected.

New York City

Personal.—Dr. Wendell C. Phillips, New York, president-elect of the American Medical Association, addressed the students' assembly at the Medical College of Virginia, Richmond, October 15.——Dr. John R. Whisenant has been appointed urologist to the Tarrytown Hospital.——Dr. Pierre Janet, Paris, France, was the guest of the Neurological Section of the New York Academy of Medicine and the New York Neurological Society at a tea given in his honor at the academy, October 23.

Gifts to Columbia University.—The president of Columbia University announced, October 11, the receipt of gifts of more than $111,000 to the university, among which were $15,000 from the Borden Company for research in food chemistry and nutrition, $15,000 from the Commonwealth Fund for the psychiatric clinic, and other gifts from the Commonwealth Fund for the maintenance of two fellowships for British students, and to meet the expense of certain researches conducted by the university. There was a gift of $2,500 from Edward D. Faulkner, to be applied toward the cost of research in the department of surgery, and $2,000 from the Eli Lilly Company, Indianapolis, to be applied toward the "pernicious anemia fund" in the department of pathology.

Society News.—Dr. Emil Goetsch addressed the Flatbush Medical Society, October 9, on "The Treatment of Diseases of the Thyroid."——Dr. Joseph C. Bloodgood, Baltimore, will address the Clinical Society of the Hospital for Joint Diseases, October 27, on "The Diagnosis and Treatment of

Lesions of Bone in the Earliest Stages with Special Relation to Biopsy (lantern slide demonstration).——John H. Northrop, Ph.D., of the Rockefeller Institute for Medical Research will deliver the second Harvey Lecture at the New York Academy of Medicine, November 14, 8:30, on "Pepsin and Trypsin."——Dr. Herman Goodman will address the American Society of Medical History, October 30, on "The Historical Aspects of Radium."——Dr. John Shelton Horsley, Richmond, Va., addressed the Medical Society of the County of Kings, Brooklyn, October 20, on "Relation of the Physiology of the Stomach to Gastric Surgery"; Dr. Tasker Howard, on "The Pathologic Physiologic of the Kidney," and Charles Frankenberger, "Our Library—Its Literature and How to Consult It."——Dr. Edward S. Welles, Saranac Lake, will address the society, November 6, on "The Surgical Arrest and Cure of Pulmonary Tuberculosis."

NORTH CAROLINA

Personal.—Dr. Lewis P. McBrayer, Southern Pines, has been elected president of the Southern Tuberculosis Association to succeed Dr. Henry Boswell, Jr., Sanatorium, Miss. ——Dr. Thomas E. Tucker, Dothan, Ala., has been elected health officer of Edgecomb County for the unexpired term of Dr. John S. Hooker, who resigned to resume practice at Farmville.

Millions for New Medical School.—The will of Mr. James B. Duke, who died October 10, provides for a bequest of $10,000,000 to the Duke endowment, in addition to the original endowment of more than $40,000,000 bestowed a few month ago (The Journal, Dec. 20, 1924, p. 2027). The will provides also that the trustees shall expend not to exceed $4,000,000 of the additional bequest in erecting and equipping at the Duke University, Durham, buildings suitable for a medical school, hospital and nurses' home.

OHIO

Hospital Superintendent Appointed.—Dr. Chester C. Kirk, professor of nervous and mental diseases, University of Arkansas School of Medicine, Little Rock, has been appointed superintendent of the State Institution for Feeble-Minded at Orient. Dr. Kirk formerly was assistant superintendent of the Toledo Hospital, Toledo, and of the Arkansas State Hospital for Nervous Diseases, Little Rock.

Midwifery in Cincinnati.—Only twenty-two midwives are known to the registrar of vital statistics in the city of Cincinnati, and the *Cincinnati Sanitary Bulletin* says that the birth records indicate that eleven have been inactive during the last three years. The remaining eleven midwives attended 247 cases in 1924, or a little less than 3 per cent. of the 8,817 births. Of these eleven midwives six are from Germany, two from Russia, one from Italy, one from Austria and one is native born. All of them but two are more than 50 years of age and have been in practice at least fifteen years. They all hold licenses issued by the Ohio State Board of Medical Registration.

Health Commissioners Conference.—At the sixth annual health commissioners conference, Columbus, recently, a day was devoted to the discussion of milk supplies and recent milk-borne epidemics in Ohio; other sessions considered child health programs; the business standpoint of public health administration; public health publicity and preventoriums. Among the speakers were Dr. Allen W. Freeman; Dr. Charles H. Miner, state health commissioner of Pennsylvania; Dr. Clarence D. Selby, president of the Ohio State Medical Association; Louis I. Dublin, Ph.D., Metropolitan Life Insurance Company, New York; Dr. William T. Henshaw, state commissioner of health of West Virginia; Dr. Arthur T. McCormack, state commissioner of health of Kentucky; Dr. John A. Ferrell, director of the International Health Board, and Surg. Leslie L. Lumsden, U. S. Public Health Service.

PENNSYLVANIA

Hospital News.—The University of Pennsylvania recently sold the Medico-Chirurgical Hospital buildings, Philadelphia, to J. Walter Rosenberg for $800,000.

Personal.—Dr. Charles H. Keene, director of public education in the Pennsylvania Department of Public Education, has resigned to accept the professorship of hygiene and director of physical education at the University of Buffalo.

Society News.—Dr. Theodore Diller addressed the Pittsburgh Academy of Medicine, October 27, on (*a*) "The Meaning of the Term 'Mentally Ill' in the Pennsylvania Law"; (*b*) "The Knowledge of Right and Wrong as the Test of Insanity in Murder Cases"; Dr. Forrest L. Schumacher gave a lantern slide demonstration of roentgen-ray plates (by invitation).

State Medical Election.—At the recent annual meeting, in Harrisburg, of the Medical Society of the State of Pennsylvania, Dr. Ira G. Shoemaker was installed as president; Dr. Harry W. Albertson, Scranton, was made president-elect; Drs. Clarence R. Phillips, Harrisburg, Edgar S. Buyers, Norristown, William E. Delaney, Williamsport, and Thomas L. Williams, Mount Carmel, vice presidents; Dr. Walter F. Donaldson, Pittsburgh, secretary, reelected; Dr. Christian B. Longenecker, Philadelphia, assistant secretary, relected, and Dr. John B. Lowman, Johnstown, treasurer, reelected. The next annual meeting will be in Philadelphia.

Pennsylvania Heart Association.—The first annual meeting of the Pennsylvania Heart Association was held, October 7, at Harrisburg, during the annual meeting of the Pennsylvania State Medical Society. Officers elected for the ensuing year were Dr. Joseph Sailer, Philadelphia, president; Drs. James D. Heard, Pittsburgh, John B. McAlister, Harrisburg, Francis J. Dever, Bethlehem, and Edward W. Bixby, Wilkes-Barre, vice presidents; Dr. John D. McLean, Philadelphia, secretary, and Dr. William S. Bertolet, Reading, treasurer. The Pennsylvania Heart Association was formed to promote the prevention and relief of heart disease throughout the state. There are now two heart associations in Pennsylvania—the Philadelphia Heart Association and the Harrisburg Heart Association—and there are thirty-six clinics throughout the state: Philadelphia, twenty-four; Bethlehem, one; York, one; Clearfield, one; Chester, one; Allentown, one; Johnstown, one, and Pittsburgh, six.

Philadelphia

Society News.—Dr. Nathaniel W. Winkelman addressed the Philadelphia Neurological Society, October 23, on "The Newer Staining Methods as Applied to Neuropathology," and Dr. Milton C. Borman on "Carbon Monoxid Poisoning: A Case Showing Mental and Neurologic Changes with Recovery."——At the October meeting of the Academy of Stomatology Dr. Elmer I. McKesson, Toledo, Ohio, held a clinic at the Pennsylvania Hospital. There were other clinics by the members of the dental profession at Evans Institute, and papers were read in the afternoon and evening at the Adelphia Hotel.—Among others, Dr. Stuart Mudd addressed the Physiological Society, Philadelphia, October 19, on "Electrokinetic Behavior of Mammalian Serous Membranes." ——The November meeting of the Obstetrical Society of Philadelphia will be a joint meeting with the Philadelphia Pediatric Society, November 10.

OREGON

Personal.—The dean of the University of Oregon Medical School, Portland, announces that Mr. Ralph Couch has been appointed secretary of the medical school to succeed Mr. Charles N. Reynolds, who goes to Stanford University as an instructor.

Society News.—The eight-story Medical Arts Building, at Tenth and Taylor streets, Portland, will be ready for occupancy in November; it is reported that more than half of the offices has been leased. The building is for the use of physicians and dentists.

Military Committee Recommendation.—The military committee of the Oregon State Medical Society, at the recent annual meeting at Medford, recommended that each county society and each component society of the state set aside one regular meeting each year as a Medicomilitary Night in order that the means of preventing disease and caring for the sick as practiced in the army may be given to the profession in general.

TENNESSEE

New Health Units.—The county courts of Dyer and Weakley counties have voted in favor of establishing full-time county health units. The Dyer County unit will be established, Jan. 1, 1926.

Personal.—Dr. Alfred B. DeLoach, Memphis, has been reappointed a member of the state board of medical examiners.——Dr. Herbert Acuff, Knoxville, was reelected president of the Tennessee Antituberculosis Association at the annual meeting, October 14.

Society News.—The Memphis Urological Society appointed a special committee recently to consult with the Memphis hospitals regarding the installation of equipment for urologic work, which reported to the society that no hospital in the city at present accepting private patients has a cystoscopic room with the equipment that one would reasonably expect to find in a modern institution. The committee also recommended certain things which each hospital should provide for carrying on urologic work. The report was signed by Drs. Thomas D. Moore and Marcus G. Spingarn.——Dr. Thomas N. Coppedge will address the Memphis and Shelby County Medical Society, November 3, on "Pott's Fracture and Its Treatment." Dr. William R. Blue addressed the society, October 20, on "Diabetes in Children."——At a joint meeting of the Southern Tuberculosis and Southern Sanatorium Associations, Memphis, October 14-16, Dr. Alfred Henry, Indianapolis, spoke on "The Follow-Up Work in Treatment of Ex-Sanatorium Patients"; Dr. John Stewart, Booneville, Ark., "The Sanatorium's Opportunity as a Teaching Agency," and Dr. James A. Price, Oakville, "Ways and Means of Securing Early Cases." There was a barbecue at the Oakville Sanatorium Friday and a general invitation extended to the public meeting that evening to hear the report of Dr. Haven Emerson on the Hospital and Health Survey of Memphis and Shelby County.——The Tri-State Medical Association will meet in Memphis, January 26-28, 1926.

TEXAS

Charges Against Ten Chiropractors.—Charges were filed, October 6, in Dallas County courts against ten chiropractors of Dallas who, it was reported, violated the state medical practice act in that they publicly professed to be physicians and surgeons and offered to treat disease without having first obtained a license from an authorized state board of medical examiners.

VERMONT

State Medical Election.—The Vermont State Medical Society announces that the officers for 1926-1927 are Dr. Edward A. Tobin, Bennington, president; Dr. Thomas S. Brown, Burlington, vice president; Dr. William G. Ricker, St. Johnsbury, secretary; Dr. David Marvin, Essex Junction, treasurer; delegate to the American Medical Association, Dr. Ricker; alternate, Dr. Clarence H. Beecher, Burlington.

VIRGINIA

State Medical Election.—At the annual meeting of the Medical Society of Virginia, Richmond, October 13-16, Dr. William L. Harris, Norfolk, was elected president; Drs. Thomas D. Jones, Richmond, George J. Tompkins, Lynchburg, and Alexander M. Showalter, Christiansburg, vice presidents, and Miss Agnes V. Edwards, Richmond, secretary-treasurer.

Dr. Knott Succeeds Dr. Levy.—Dr. Arthur D. Knott has accepted the position of acting professor of preventive medicine at the Medical College of Virginia, Richmond, to take the place of Dr. Ernest C. Levy, who is on indefinite leave of absence. Dr. Knott received his degree of Doctor of Public Health from Johns Hopkins University and for several years was in charge of public health work in Accomac County. Dr. Robert P. Cooke, who has been connected with the Army Remount Station at Front Royal, will succeed Dr. Knott in Accomac County.

Personal.—Dr. Charles H. Moncure has been elected health officer of Orange.——Dr. William H. Parker has resigned as a member of the school board of Richmond, having moved from the district from which he was appointed.——Dr. Joseph A. McGuire, Norton, has been appointed a member of the state board of health for the unexpired term of the late Dr. Henry M. Miles.——D. B. Lepper, health officer of the Isle of Wight County, has been transferred to Sussex Court House in charge of health work in that county, and Dr. Goldsborough Foard McGinnis will have charge in Isle of Wight County.

Pediatrics at the University of Virginia.—A new clinic building has been opened at the University of Virginia Hospital, Charlottesville. A General Child Welfare Clinic will be conducted, for which funds have been secured through the Commonwealth Fund, New York, from private contributions, and the women of the University Hospital League. The aim will be to study child health, first, in the vicinity of the university and to extend the work, ultimately reaching the mountain people in the western part of the state. There will be trained public health pediatric nurses, student nurses and medical students employed in the clinic building and out in the field. Funds for the first three years' work are in hand. The work is under the direction of Dr. Lawrence T. Royster assisted by Dr. William W. Waddell, Jr.

CANADA

Sir Henry Gray Resigns.—According to the *British Medical Journal*, Sir Henry Gray has resigned as surgeon-in-chief of the Royal Victoria Hospital, Montreal, and as lecturer in clinical surgery at McGill University; when appointed to these positions two years ago, he was surgeon to the Aberdeen Royal Infirmary and previous to that was consulting surgeon with the British army in France.

GENERAL

Personal.—Dr. H. Allasys, Antwerp, Belgium, and Dr. Chompret, St. Louis Hospital, Paris, secretary and president, respectively, of the International Stomatological Association, were elected honorary members of the American Stomatological Association at the meeting in New York, October 15. It was due to the efforts of Allasys and Chompret that the American Stomatological Association received recognition on the occasion of the recent visit to Europe of the American Stomatological Committee.

New Name for Inter-State Postgraduate Assembly.—Dr. Carl Larsen, St. Paul, was elected president-elect of the Inter-State Postgraduate Assembly at the annual convention in St. Paul, October 16. Drs. William J. Mayo and Charles H. Mayo, Rochester, Minn., remain as presidents of clinics, and Dr. William B. Peck, Freeport, Ill., as managing director of the assembly, which hereafter will be known as the Inter-state Postgraduate Association of North America instead of the Inter-State Postgraduate Assembly of America.

Diseases Under Investigation.—The Hospital of the Rockefeller Institute for Medical Research, New York, announces the diseases that are under investigation at that institution at present. Physicians may communicate with the hospital by telephone or personal application to the resident physician concerning the admission of patients suffering from (1) nephritis; (2) chickenpox; (3) acute pulmonary infections, including acute lobar pneumonia; (4) rheumatic fever, and (5) cardiac diseases. Patients suitable for these studies will be admitted to the extent of the hospital facilities.

Permits for Tax-Free Alcohol.—Physicians who have permits to procure tax-free alcohol issued prior to August 31, and who desire to carry over tax-free alcohol secured during the present year, must file applications for renewal permits on or before December 31 with the Collector of Internal Revenue having jurisdiction. Tax-free alcohol may be withdrawn for the use of any scientific university or college of learning, any laboratory for use exclusively in scientific research, and for use in any hospital or sanatorium. New bonds are not required with renewal applications when the bonds previously filed are sufficient to cover the needs of the applicants, and the security they afford has not been impaired in any way.

American Hospital Association.—The twenty-seventh annual convention of the American Hospital Association was held in Louisville, Ky., October 19-24. There were more than 2,000 delegates in attendance and about 3,000 other persons interested in hospitals. The association has established a personnel bureau to assist hospitals in securing qualified personnel, and has adopted a set of standards for outpatient departments of hospitals; a set of principles governing the admission to membership; established a legislative reference bureau, and adopted a curriculum for the university training of hospital executives. "Essentials in a Hospital Approved for Interns," prepared by the Council on Medical Education and Hospitals of the American Medical Association, was accepted as governing the intern, or fifth, year in medicine. As to what practitioners shall be allowed to use the hospital, the association ruled that "the members of the staff and all physicians granted the privileges of the hospital should be reputable practitioners of medicine who hold the degree of Doctor of Medicine and of unquestioned moral and professional integrity. A hospital admitting any of the so-called cults to practice under the corporate name of the hospital is not admissible to membership." The association voted to purchase a building at 18-22 East Division Street, Chicago, and the headquarters will move to the new location, June 30, 1926.

Southern Medical Association.—The nineteenth annual meeting of this association will be at Dallas, Texas, November 9-12. There will be all day clinics at the leading hospitals the first day and in the evening the first general session, at which the presidential address and the orations in medicine and surgery will be given. Three prominent surgeons will deliver addresses at the second general session, Tuesday evening. The section meetings will begin Tuesday morning. Following the general session, Tuesday evening, will be the president's reception and grand ball. There will be a golf tournament, and special trophies as well as the *Washington Post* trophy, which is offered each year, will be awarded. The meetings will be in the First Baptist Church; the hotel headquarters will be at the Adolphus Hotel. The Texas State Pediatric Society will hold an all day clinical meeting at Stoneleigh Court, November 9. Among many other scientific features will be a symposium on cancer, November 11, at a joint session of the sections on surgery and pathology, and a symposium on diabetes, November 12, at a joint session of the sections on medicine and pathology. The Southern States Association of Railway Surgeons, an auxiliary organization, will conduct a symposium on fractures, November 10, at a joint session of the sections on bone and joint surgery. The National Malaria Committee will meet, November 10-11. Among others, Dr. Oliver S. Ormsby will address the section on dermatology and syphilology, November 9, on "Anaphylaxis and Allergy in Dermatology."

Institutions Devoted to Cancer Research.—The director of the American Society for the Control of Cancer notes that the following research institutions, among others, are adding to the scientific knowledge as to the cause, prevention and cure of cancer: Institute of Cancer Research of Columbia University; the State Institute for the Study of Malignant Disease at Buffalo; the Cancer Commission of Harvard University; the Imperial Cancer Research Fund of England, and hospital and research organizations such as the Collis P. Huntington Memorial Hospital, Boston; the Memorial Hospital, the New York Skin and Cancer Hospital and the New York City Cancer Institute, in New York City; the Barnard Free Skin and Cancer Hospital, St. Louis; the Albert Steiner Ward for Cancer and Allied Diseases, Atlanta; the George Chase Christian Hospital and Clinic, University of Minnesota, Minneapolis; the American Oncologic Hospital, Philadelphia; the Pennsylvania Cancer Commission; the Middlesex Hospital in England, and others. In addition, there is the American Association for Cancer Research, established in 1907, with a membership of 148, whose researches are published in the *Journal of Cancer Research*, and the American Society for the Control of Cancer, established twelve years ago, to carry on a campaign of education as a means of using the existing knowledge of cancer to the fullest extent; about 25,000 volunteer workers engage during the year in this educational work of instructing the public by lectures, newspapers, radio and other means of publicity. The society's headquarters are at 370 Seventh Avenue, New York, where inquiries on all aspects of cancer will be answered.

Society News.—At the recent annual meeting of the American Academy of Ophthalmology and Otolaryngology, Chicago, Dr. Edward C. Ellett, Memphis, Tenn., was installed as president; Dr. Ross H. Skillern, Philadelphia, was made president-elect; Drs. Austin A. Hayden, Chicago, William C. Finnoff, Denver, and George L. Tobey, Jr., Boston, vice presidents; Dr. Luther G. Peter, Philadelphia, secretary, and Dr. Secord H. Large, Cleveland, treasurer. The next meeting will be at Colorado Springs, September, 1926.——Dr. Walter G. Alexander, Orange, N. J., was installed as president of the National Medical Association at the recent annual meeting in Chicago, and Dr. Carl G. Roberts, Chicago, made president-elect; Dr. Joseph J. France, Portsmouth, Va., J. H. Terrell, D.D.S., West Palm Beach, Fla., and J. A. McFall, Phar.D., Charleston, S. C., vice presidents; Dr. Clyde Donnell, Durham, N. C., general secretary, and Dr. J. R. Levy, Florence, S. C., treasurer. The next annual meeting will be at Philadelphia, August 24-27, 1926.——At the fifty-fourth annual meeting of the American Public Health Association, St. Louis, October 19-20, Charles-Edward A. Winslow, Dr.P.H., professor of public health and hygiene, Yale University School of Medicine, New Haven, Conn., was elected president; Drs. John A. Amyot, Ottawa, Canada, Max C. Starkloff, St. Louis, and Albert J. Chesley, Minneapolis, vice presidents, and Louis I. Dublin, Ph.D., New York, treasurer. The next meeting will be in Buffalo.——The American Congress of Internal Medicine will be held at Detroit and Ann Arbor, Feb. 22-26, 1926. There will be clinics, addresses and demonstrations at Detroit on all of these days, and clinics, addresses and demonstrations at the University of Michigan, Ann Arbor, February 25. The hotel headquarters will be at the Book-Cadillac, Detroit. Information may be obtained from Dr. Frank Smithies, Secretary-General, 1002 North Dearborn Street, Chicago.——Dr. Frank H. Walke, Shreveport, La., was elected president of the American Association of Railway Surgeons at the recent annual meeting in Chicago, October 21-23; Drs. Don W. Deal, Springfield, Ill., Ebenezer P. Clapper, Waynoka, Okla., and Prince E. Sawyer, Sioux City, Iowa, vice presidents; Dr Frederick G. Dyas, Chicago, treasurer (reelected), and Dr. Louis J. Mitchell, Chicago, secretary-editor (reelected).

FOREIGN

Foundation of Banti Prize by Argentine Physicians.—The *Policlinico* states that the sum of 50,000 liras has been presented to the medical faculty at Florence by physicians in Argentina to found the Guido Banti prize. The income from the endowment is to be awarded for the best original Italian work on pathologic anatomy.

New Hospitals in Tokyo.—The city of Tokyo, Japan, has decided to construct six new hospitals at a total cost of 5,380,000 yen, one of which will be for the exclusive treatment of laborers and others living in the slum districts. The first of this group will be constructed in Azabu, the second in Okubo, a suburb of Tokyo, both of which and three others will be finished by the end of 1926. The buildings will be of reinforced concrete, three stories high.

Personal.—A chair of epidemiology has been created at the Collège de France at Paris and Prof. H. Vincent appointed to it. This is regarded as a national honor for Dr. Vincent, who was médecin inspecteur général of the French army until his retirement on reaching the age limit.——Professor Jude of the military medical school at Paris has been appointed to the chair of nervous and mental diseases in the new Syrian medical school at Damascus. The dean of this school, Dr. Riza Said, and nearly all the other members of the faculty studied medicine in France.——The medals awarded to Profs. Heitz-Boyer, Pasteur Vallery-Radot and Mathé, Paris, by the Cuban Academy of Sciences were presented to them recently by Prof. M. Fernández, president of the academy, at a banquet at the Paris-Latin America Club.——Dr. G. F. Fuse, professor of anatomy, Tohoku Imperial Medical College, Sendai, has been appointed dean to succeed Dr. K. Awoki.——Dr. T. Satow, health officer in the Home Department, was the Japanese delegate to the International Malaria Conference at Rome in October.——Dr. Alfred Kassel was given the Croix de Guerre recently in appreciation of his evacuation of the wounded under heavy fire in the Morocco campaign. He is the first Morocco physician to be given a decoration.——Dr. Ammerling, who is one of a group of 100 Czechoslovakian physicians on a tour of western Europe, spoke at the Collège de France, Paris, on "Purkinje, the Founder of Czech Medicine."——Dr. Rouhet has been a leader in physical training in France for forty years, and the community of Roquebrunė recently placed a commemorative tablet on his residence. He was given at the same time a plaque presented by the World Federation for Physical Training, and the gold medal of the French Société d'encouragement à l'amélioration de la race." His training of the educated stallion Germinal attracted attention several years ago.

CORRECTION

"New Home for New York Academy of Medicine."—In The Journal, October 17, appeared a statement relative to the new home of the New York Academy of Medicine, saying that its public medical library is the only one in New York. Mr. Charles Frankenberger, librarian of the Medical Society of the County of Kings, writes that this statement is erroneous. Since its consolidation in 1898, New York City has comprised the five boroughs of Manhattan, Brooklyn, Bronx, Queens and Richmond. The Library of the New York Academy of Medicine is not the only public medical library in New York. It is the only public medical library in the Borough of Manhattan. But in the Borough of Brooklyn is the Library of the Medical Society of Kings. This library, established in 1844, is the only public medical library in Brooklyn and on Long Island. It contains 100,000 volumes and receives regularly 1,080 current periodical publications. In size it ranks as the fourth largest medical library in the United States, exclusive of the Surgeon General's Office in Washington. It is housed in a modern library building, owned and maintained by the county society; is open daily and on two evenings each week to the medical and allied professions and to the public for reference, and is in charge of a trained staff of workers.

Government Services

U. S. Public Health Service

P. A. Surg. Marion R. King has been relieved from duty at Hongkong and assigned to the Hygienic Laboratory, Washington, D. C.——Asst. Surg. R. L. Lawrence has been assigned to duty at Manila.——Surg. George W. McCoy has been directed to proceed from St. Louis to Oklahoma City to inspect a laboratory which has applied for a license to manufacture and sell vaccine.

Examination for Public Health Service

Surgeon General Cumming announces that examinations will be held, December 7, in Washington, D. C., Chicago, New Orleans and San Francisco for entrance into the regular corps of the U. S. Public Health Service. Candidates must be not less than 23 nor more than 32 years of age, graduates from a reputable medical college and have had one year's hospital experience or two years in professional practice. There will be oral, written, physical and clinical examinations before a board of medical officers. Permission to take the examination is obtained by addressing the Surgeon General, U. S. Public Health Service, Washington, D. C.

Meeting of Council of Veterans' Bureau

President Coolidge is in favor of establishing in the Veterans' Bureau a medical corps with the same rank, pay and allowances now granted to medical officers in the army and navy, according to an announcement by Frank C. Hines, director of the Veterans' Bureau, at a recent meeting of the medical council of the bureau. General Hines stated that the bureau would request that legislation establishing such a corps be proposed at the next session of Congress. Other speakers at the council meeting included Dr. Ray Lyman Wilbur of Leland Stanford University, chairman of the council, and Dr. E. O. Crossman, medical director of the Veterans' Bureau. Dr. Crossman informed the council of the *Medical Bulletin*, a publication of the bureau started in July, which he said was proving of much value. Medical supervisors, he said, are standardizing both administration and treatment in the Veterans' Bureau hospitals.

Graduation of Field Officers at Carlisle

Graduation exercises were held at the Medical Field Service School, Carlisle Barracks, Pa., October 13, for the class of officers of the medical department, National Guard and Reserve, who completed the field officers' course in this school. The commandant, Lieut.-Col. Charles R. Reynolds, M. C., presented the DeVries medal, which is given to the officer attaining the highest standing in the class, to Lieut.-Col. Roy M. Fortier, Medical Reserve. Lieut.-Col. Joseph C. DeVries, the donor of this medal, is a graduate of the course for national guard and reserve officers of this school. The McCamant medal, given for the highest standing in military hygiene, was presented by Major M. C. Stayer, M. C., director of the department of hygiene, to Major Harold E. Eggers, Medical Reserve. Col. Thomas J. McCamant, Medical Reserve, the donor of the medal, is also a graduate of this school. Diplomas were presented to the following officers:

Col. James E. Daniel, Medical Reserve, Greenville, S. C.
Col. David C. Hilton, M. C., Nebraska National Guard, Lincoln, Neb.
Col. Edward M. Iland, M. C., Pennsylvania National Guard, Coraopolis, Pa.
Col. James H. Ullrich, Medical Reserve, Baltimore.
Lieut.-Col. William G. Noe, Medical Reserve, New York.
Lieut.-Col. Henry W. Cattell, Medical Reserve, Washington, D. C.
Lieut.-Col. Erin E. Epting, Medical Reserve, Anderson, S. C.
Lieut.-Col. Roy M. Fortier, Medical Reserve, Santa Ana, Calif.
Lieut.-Col. William B. Lewis, Medical Reserve, Denver.
Lieut.-Col. Walter F. Schmaltz, Medical Reserve, Dallas, Texas.
Major Harold E. Eggers, Medical Reserve, Omaha.
Major Ralph G. Cressman, Medical Reserve, Hastings, Neb.
Major John F. West, Medical Reserve, Belvidere, Ill.
Major David E. Smallhorst, Medical Reserve, El Paso, Texas.
Major Bernard A. Gallagher, Vet. Reserve, Washington, D. C.
Major Carl W. Lupo, Medical Reserve, Vienna, Ga.
Major Lorenzo O. Smith, M. C., Kentucky National Guard, Harlan, Ky.
Major Ray R. Knight, Medical Reserve, Minneapolis.
Capt. Leland O. Carey, M. C., Iowa National Guard, Des Moines, Iowa.
Capt. Karl H. Metz, Dental Reserve, White Plains, New York.
Capt. William H. Thaler, M. C., Missouri National Guard, St. Louis.
Capt. Henry A. Jasme, V. C., Georgia National Guard, Savannah, Ga.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 17, 1925.

Imperial Social Hygiene Congress

A largely attended congress has been held under the auspices of the British Social Hygiene Council in one of the halls of the British Empire Exhibition at Wembley. It was opened by Mr. L. S. Amery, secretary of state for the colonies, who reviewed the problem of venereal diseases in various parts of the empire. He considered that, under the conditions of modern science, there were no diseases which were more susceptible of being dealt with and cured, if only public opinion was strong enough. Over great parts of the empire the difficulty had been ignorance, indifference and fatalism. At home and in the self-governing dominions, concealment had made it very difficult to deal with the problem, but there had been an enormous change for the better.

VENEREAL DISEASES IN THE SERVICES

Surgeon-Commander T. B. Shaw said that the figures for 1922, in the navy, the latest available, showed that the case ratio per thousand men had fallen from 113 in 1921 to 103.9, and the ratio per thousand sick daily had fallen from 8 to 7.2. A fall in incidence had occurred in all stations except Africa, where the number of cases per thousand was 176.7, as compared with 157.6 in 1921. Although in the China station a considerable fall had taken place, the incidence, 282.3, was still much higher than in any other. The loss to the service from these diseases was, therefore, still very heavy. In the years preceding the Great War, there had been a steady decline in the incidence, but since 1915 venereal diseases had shown a steady increase, associated, no doubt, with a general increase in promiscuous sexual intercourse following a general laxity in sexual relations. He was convinced that promiscuity would continue for some people in spite of all efforts to the contrary. The only hope of eventual extermination of these diseases lay in the wider application of means of disinfection immediately after intercourse. His experience showed that when prophylactic measures were properly used, there was little or no risk of contracting the disease.

Major F. C. Lambkin said that in the army the great advances made in connection with the subject of social influences, especially temperance, played a great part in producing improvement. During the last twenty years, excluding the war period, the incidence of venereal diseases in the army at home steadily declined. In 1904, the admissions were at the rate of 55.8 per thousand men, and in 1922, 25.9. The admissions in garrisons abroad had always been high, owing partly to the lack of provision for regular exercise, partly to the laxity of treatment in small scattered units. In the area of occupation on the Rhine and in Turkey, the problem was difficult; in Cologne alone it was computed that there were 6.000 prostitutes. He emphatically declared, contrary to the view held by some, that the army did not condone or encourage sexual irregularities but did its best to make the conditions for the soldier as alert and invigorating as possible. There should be some organized attempt at prevention by medical means, such as the packet in use in the navy.

Race Problems

At the annual Church Congress, just held, great attention was given to a problem of much wider bearing than the religious one, which of course was mainly in view; namely, the future relation of the white and the colored races. The

Great War has stimulated certain tendencies already existing. In the East the gospel of self-determination has been everywhere eagerly received by the colored races. To the resentment of the colored man at his position of inferiority, and to his determination that the democratic ideals of the Allies should be of universal application, there has been added the belief that the moral basis of Eastern life is in many ways higher and nobler than that of the West. The war has done more than anything else to rouse the people of India to a sense of nationhood and to an intense desire to have more control of their affairs. In opening a discussion on the subject, Lord Willingdon said that there was only one solution to the problem. The white races must realize the necessity of treating all colored men in a spirit of absolute equality, and give up the attitude of color superiority. Providence had long years ago placed the white man in the position of a trustee, whose wards, the colored men, were rapidly growing up. The white man no longer dominated them even for their own good. At best he could tactfully guide them past particular dangers. He had now to meet on terms of absolute equality those whom he had previously regarded as inferiors.

Mr. J. H. Oldham said that perhaps the most fundamental cause of friction and conflict between races was not so much racial as economic. The exclusive immigration policies of the United States and the British dominions, which had produced tension between Western and Oriental peoples, were due, in part at least, to the fear that the standards of living might be affected by the admission of cheap labor. The relations between the white and the black races were largely influenced by the fact that the whites were almost everywhere the employers and the blacks the employed. The problem was essentially economic, though made more difficult by racial differences. In the case of the Eastern races, differences of civilization, which in turn depended on historical experiences, complicated the question. The race problem, to the minds of the colored peoples, resolved itself largely into a claim for equality. The sting of the exclusion of oriental immigration from Western countries lay not so much in the fact of restriction as in discrimination. Many voices called today in all sorts of ways for a solid white front against the colored races. But a solid white front meant a solid yellow front, a solid black front and so on, which in turn meant war. The only way to avoid this disaster was to put the claims of humanity and justice higher than those of race, and in this the lead should be given by the Christian churches.

Ultraviolet Rays for Monkeys

Light therapy has attained a considerable vogue in this country and its use has now been extended to animals. Now that the autumnal fogs are cutting off the sunlight a new departure in the care of monkeys, which is being carried out at the Zoological Gardens, London, has been advanced a stage farther by providing two batteries of powerful electric light in quartz globes, which do not shut off the ultraviolet rays. One battery of three lights is in the open air under a veranda roof; the other is inside the monkey house, placed above the highest perches, with a reflector which throws down the beams, but which is protected from the monkeys by wire netting. At present the monkeys are given an exposure of only a quarter of an hour at a time, once or twice a day, according to the weather. When the light was first turned on, it was interesting to see how the African monkeys and the little American marmosets discovered it at once. They rushed toward the light and sat immediately under it, stretching their limbs and turning themselves round and round, so as to expose their bodies thoroughly to the radiant light and heat. In the case of the lion house also, a move has been made in the direction of more light. The area of the roof lights is being more than doubled, and instead of ordinary glass, "vita-glass," which is transparent to the ultraviolet rays, is being fitted.

Alcoholism as an International Problem

The eleventh Norman Kerr memorial lecture was delivered before the Society for the Study of Inebriety by Dr. R. Hercod, director of the International Bureau against Alcoholism, Lausanne, Switzerland, who took for his subject, "Alcoholism, an International Problem." He said that the question of the supply of alcoholic beverages had become a very important international problem from the economic point of view. The widespread ramifications of the traffic in alcohol and its increasing production had produced a tendency of the liquor trade in a country not only to oppose what was done there to diminish the use of alcohol, but also to try to introduce alcoholic beverages into countries where their use was hitherto unknown. Africa was now suffering from a veritable scourge of alcoholism, the outcome of the introduction of European civilization. The same might be said of Moslem countries. Referring to American prohibition, he said that it was a great pity that the authorities of the United States, who, it might be said, were experimenting for the benefit of the whole world, had not thought of organizing a systematic and continuous investigation with regard to the facts of prohibition. With the help of trained investigators and a few hundred thousand dollars, it would have been possible to constitute a good documentation, before which all would have had to incline, on the subject of prohibition. This would have been of the greatest benefit to every country engaged in the fight. Those who were engaged in the fight should aim at creating such public opinion that principles which were ripe for adoption, but not yet recognized, might be introduced into a future code of international law. The facts concerning alcohol could be taught with fruitful results through the means of schools and colleges.

PARIS

(From Our Regular Correspondent)

Oct. 5, 1925.

Lead Poisoning Resulting from the Manufacture of Storage Batteries

Balsac, Lafont and Feil recently published in the *Bulletin médical* the results of an inquiry made to complete their previous investigation of occupational morbidity among workmen employed in the manufacture of accumulators. They found that lead poisoning in workmen so engaged is frequent. They examined fifty workers, two women and forty-eight men. Of the latter, nineteen were Frenchmen and twenty-nine were Moroccans. Only two of the workers were under 20 years of age, while eight were past 40. The stigmas of lead poisoning and of preliminary stages, which the authors studied particularly, are: urticaria, basophilic stippling of red blood cells, nucleated red blood cells, Teleski's sign (extensors of the wrist too weak to raise the hand above an angle of 45 degrees when the forearm is extended), and finally lead colic. For the nineteen Frenchmen and two French women, the findings were: urticaria or wheals, 8 (38 per cent.); red blood cells with granulations, 15 (71 per cent.); nucleated red blood cells, 0; sign of the extensors, 7 (33 per cent.); lead colic, 9 (43 per cent.). For the twenty-nine Moroccans the findings were: wheals, 21 (72 per cent.); red blood cells with granulations, 23 (80 per cent.); nucleated red blood cells, 22 (79 per cent.); sign of the extensors, 14 (49 per cent.); lead colic, 3 (11 per cent.).

It will be seen that workmen employed in the manufacture of accumulators present a very high percentage of stigmas and symptoms of lead poisoning—much higher, namely, than is found in other lead industries. That the stigmas and symptoms (aside from the lead colic) were more frequent in the Moroccans than in the Frenchmen is presumably because the latter were better able to understand and adopt proper prophylactic measures. The stigmas of lead poisoning are found most frequently among the spreaders and mixers, and this class of workmen should therefore receive special medical supervision. This is compulsory in accumulator factories, as well as in other establishments using large quantities of lead.

Social Workers in Factories

During the war, a group of women established a school to train other women as social workers in factory communities, since the factory manager and directors are too much absorbed in the direction of affairs for such matters. Now many heads of industry see that social supervision has a definite influence on the output of the factory. The social worker guarantees good order and discipline, proper management of the milk-distributing station, the consultation service for nursing mothers, the crèches, the day nursery, the canteen, the rest room, and other enterprises accepted or introduced by the factory management, the value of which depend on the way they are managed. Prepared by her studies in the school for nurses and by long service in the hospital, the social worker cooperates with the medical service in the crusade against infant mortality, tuberculosis, syphilis, cancer and occupational diseases. She visits the families of the women employees, learns their aspirations, assists them socially and trains them in hygiene and right ways of living in general. In former days, the wife of the factory owner did some of this work, but with the growth of the great industries new needs and new problems require better methods. Thus today the charity of olden times has been replaced by a form of social service which endeavors not only to do works of mercy and kindness but also to take a just and comprehensive view of the situation that surrounds factory women and to preserve them in health and strength; and in this way to contribute toward a stronger and healthier stock in the future.

The social worker is familiar with the resources of public and private aid: the legal provisions concerning large families, lying-in women and nursing women, and sees to it that those in her charge get the benefits of these provisions. Her moral influence is great, and the social worker knows also how to make herself beloved.

The training school for these social workers is located in Paris, 43 Rue Pernety (XIV). It is growing steadily under the direction of Dr. Armand-Delille assisted by two women vice presidents and a committee on instruction. The management is as solicitous as to the general character and moral worth of the students as it is in regard to their formal training. Of sixty-seven applicants for admission, only ten were accepted. The school finds places for its graduates, and they are paid by the industries or administrations that employ them. Their initial salary is 8,400 francs.

The careful selection of applicants and the judicious placing of graduates explain the unanimous satisfaction expressed by the establishments that have employed these social workers. There are now 177 social workers in factories and like positions. One of the most distinguished founded the service that provides compensation to injured workmen of the Paris region. Another is a licentiate in law and is administering the affairs of a woman's work colony. Another is in charge of a mutual aid society composed of the employees of one of the large tailoring establishments of Paris. A worker employed by Michelin superintends the hiring of new employees. In a report, she has pointed out how the social worker can assure the recruiting of an efficient, reliable force and good production. One large railway company (La compagnie des chemins de fer d'Orléans) employs eight workers.

ITALY

(From Our Regular Correspondent)

Oct. 8, 1925.

Center for Research on Human Growth and Constitution

Prof. Nicola Pende, rector of the University of Bari, has accepted the chair of clinical medicine at the University of Genoa, where he has founded a new study center or institute. The new institute will take over the guardianship of the growth and the individual constitutional betterment of children and youths from the beginning of school age up to the commencement of military service, at which time physical development is practically completed. Professor Pende induced Senator Gentile, the preceding minister of public instruction, to decree that one of the medical schools should establish a center of research on the morphology, physiology and pathology of physical and mental development in the schools. As the outcome of that decree, we have now the new institute in Genoa. Another decree regulates state aid for mothers during the early childhood of offspring. With these decrees and the recent legislative measures on physical education, the state plans to correct abnormalities of physical and mental development which are wont to appear during the first years of life, and which, if diagnosed in time, are susceptible of great betterment.

The institute planned by Professor Pende will apply to the youth of the land those measures needed to strengthen weak points in their constitutions and to combat disease tendencies, with a resulting maximal benefit to society. The institute will also constitute a center of information in regard to the qualities and capacities of young persons. Herein the state (and likewise large industrialists) will be given better opportunities for selection of persons to fill difficult positions, as in the aviation or the colonial service.

Visit of Foreign Physicians to the Italian Climatic Resorts

One hundred and sixty foreign physicians are participating in a study tour of the climatic resorts and the mineral springs of Italy. The trip was organized by the Ente Nazionale Industrie Turistiche and is conducted by Professor Ruata. During the last few days the physicians have visited San Remo, Ospedaletti Ligure, Bordighera, Nervi, Rapallo and San Margherita Ligure, where they were most cordially received by the sanitarians and the local authorities. The further itinerary will include Viareggio, Leghorn, Montecatini, Bagni di Chianciano, Fiuggi and Rome. The natural beauties, the therapeutic equipment and the sanitary organization of the health resorts visited made a favorable impression on our welcome guests.

The Title of Medical Specialist

The national government proposes to regulate the use of the title of medical specialist and the corresponding professional practice. This problem has occupied Italian sanitarians for a good many years and for a number of months has been the subject of lively discussion in the medical press. The president of the Federazione degli ordini dei medici, at the request of the bureau of public health, has set forth criteria that might be temporarily adopted until the medical faculties could establish state examinations admitting to the title of medical specialist. According to the federation, the practice of the various specialties should be allowed, at present, to the following: department heads of university medical faculties; department chiefs in large hospitals, and those who, for a period of five years, have been known as practicing specialists. Although the latter would require the endorsement of the council of the medical organizations of which they are members before they would be recognized, certain medical organizations refused to approve the proposals of the federation on the ground that they were too liberal. They asserted that medical and legal agencies desired the title of specialist reserved for those who truly possess a profound knowledge of a branch of medicine. It was also held requisite for securing the title of specialist that a physician confine his practice exclusively to his specialty. The federation suggested also that medical organizations compile a register of specialists.

Historical Data on the Surgery of Varicose Veins

The Società italiana di storia delle scienze mediche e naturali held recently in Venice its third national convention, which was a pronounced success. Professor Giordano, surgeon and historian, commemorated in his address the centenary of Tommaso Rima's theory of the origin of varicose veins and his surgical method of treatment.

The operation for varicose veins has remote Italian traditions. Cicero narrates that Caius Marius submitted to this operation, the incision extending to a point in the foot, which was at that time the usual procedure for the more valorous. Senator Giordano passed in review the subsequent rich literature on treatment of varicose veins. Rima, active surgeon from 1822 to 1843 in the hospital of Venice, was the first to observe that the true cause of the infirmity is the "inverse movement of the blood," which injures the valves or impairs the tunics. On this conception, Rima based his ligation treatment, and the statistics of his operations show good results. Rima's theory and treatment were combated most vigorously, but at last the truth of his assertions was recognized. Others claimed the merit due him, but Senator Giordano defended resolutely the claims of the Venetian surgeon.

Results of the Antimalaria Campaign in Italy

The bureau of public health reports that malaria has been recognized in fifty-two of the sixty-nine provinces of Italy. The following seventeen provinces are thus far exempt: Ancona, Arezzo, Belluno, Brescia, Cuneo, Florence, Forlì, Genoa, Lucca, Macerata, Massa Carrara, Modena, Parma, Pesaro, Urbino, Piacenza, Porto Maurizio and Turin. The fact that a province is included in the malarial zone is no indication of the incidence of the disease but merely indicates the possibility of the inhabitants contracting malaria. Of the fifty-two infected provinces, manifestations are mild in fourteen, and infrequent and restricted to certain localities in a few communes. The larger part of the malarial territory is along the coasts and in the low or medium alluvial valleys of rivers and mountain streams. Railway construction has contributed to the spread of the infection, because, built for the most part before the mode of transmission of malaria was understood, the railways have many level embankments and undrained excavations. In the provinces of Milan, Pavia and Novara, malaria (diffuse but in a mild form) is due to irrigated fields, especially rice fields. In certain localities of Italy, the Anopheles mosquito is found without the presence of malaria; in many other localities, progressive decrease of malaria has been noted.

The crusade against malaria in Italy began with antimalaria legislation in 1900. Since that date, it has been progressively prosecuted by the directors of public health and the responsible ministers. It is based on: (1) state control of the preparation and sale of quinin salts, through which the communes and various corporations are supplied at reasonable prices; (2) compulsory prophylaxis in certain contingencies, and (3) the obligation on estate owners to eliminate ponds and stagnant waters.

The results of the twenty-year campaign against malaria are seen in the statistics. Before the present legislation went into effect, the mortality for malaria reached 15,000 deaths yearly. Since 1903, the mortality had been steadily decreasing, until in 1914 the total number of deaths had reached 2,045. The war brought a marked recrudescence of the disease, the mortality for 1918 having been 11,487, owing to the coincidence with the influenza epidemic. Since 1919, malaria has again been decreasing progressively and has now about reached the prewar basis. In 1923, there were 3,307 deaths from malaria, or eighty-seven per million of population.

BERLIN

(From Our Regular Correspondent)

Oct. 3, 1925.

The Session of the League of German Medical Societies

THE KRANKENKASSEN AND THE MIDDLE CLASSES

Since the war, it has become increasingly difficult for the middle classes to secure the money needed in cases of illness. For that reason, the need of health insurance is being more and more strongly felt. A number of schemes for health insurance for the middle classes have already been launched, such as housewives' mutual benefit organizations, craftsmen's chambers, and other similar societies. In this connection, a general antipathy toward panel physicians has developed, and for this reason an endeavor has been made to abolish everything that is reminiscent of the bureaucracy of the *Krankenkassen* and their compulsory membership. The local *Krankenkassen* under the direction of the social democrats are watching the progress of the new endeavors and combating them when their fear is awakened. The newer organizations seem likely to thwart the social democrats in their plan of gradually extending compulsory health insurance to all classes and thus bringing about the introduction of social medicine by way of the local *Krankenkassen*.

At the recent meeting of the Hartmann League during the annual session of the League of German Medical Societies, one of the speakers presented the following points: In 1906, at the regular annual session of the League of German Medical Societies (the so-called *Aerztetag*), held in Halle, the desire of the middle classes for protection against economic losses due to disease and like causes, by means of mutual organization, was recognized by the convention as fully justified. Therefore, under the changed economic conditions of today like endeavors of the middle classes meet with even greater approval of the physicians. Health insurance schemes for the middle classes in the future must not interfere with relations between private patient and physician, and, furthermore, they must provide that membership be limited to the middle classes. The by-laws of such insurance organizations should contain the following fundamental provisions: No contract shall be entered into with physicians or medical organizations for the purpose of determining the conditions on which medical assistance will be rendered. Insured members must not be given either cash or coupons in payment of health insurance claims. Only treatment given by graduate physicians shall be recognized and approved. The insured must himself bear a portion of the fees paid for medical attendance and any other expenses connected with the illness. Representatives of the medical societies should collaborate in the organization of health insurance systems. Health insurance societies that comply with these fundamental requirements will promote the interests of the medical profession and the public health and will combat quackery. They will also prevent extension of federal compulsory health insurance and the growth of bureaucracy in the medical profession. Medical organizations as well as individual physicians will support the new idea. Another speaker on this topic took an unfavorable attitude toward mutual societies for the benefit of the middle classes, whereupon the convention appointed a committee to inquire further into the subject and submit a report.

PROPOSED REGULATIONS FOR MEMBERSHIP IN THE PANEL OF HEALTH INSURANCE PHYSICIANS

Dr. Hadrich discussed the proposed new regulations for acquiring membership in the panel of health insurance physicians, the so-called *ärztliche Planwirtschaft*. The three main provisions of the proposed plan are: (1) a uniform distribution of applicants throughout Germany by announcement of vacancies in the panel and the issuance of warnings against physicians locating in overcrowded districts; (2) pensioning of panel physicians who have reached the age of 70 or who have previously become incapacitated, and (3) constant observation of the labor market so as to have the supply of physicians in a given region correspond to the demand. In the uniform distribution of panel physicians, the numbers of the insured and their families, together with the social and economic organization of the whole population, must be considered. In sending panel physicians to thinly populated or poverty stricken districts, the state or the communal league should subsidize physicians sufficiently to insure them an income commensurate with their profession. The following proposals are made to solve the problems of the transition period: All physicians who, after Oct. 1, 1925, shall be admitted to panel practice shall aid the Hartmann League and the leagues of the *Krankenkassen*, to raise the funds necessary for the support of physicians whose advancing age or physical incapacity compels them to retire. All newly admitted panel physicians shall pay a certain percentage of their incomes (about 10 per cent., possibly) for this purpose, due account being taken of their own needs. Pressure must not be exerted either to induce an applicant for panel practice to accept a place offered him or to persuade elderly physicians to resign. No pensioned physician may continue in panel practice. In order to correlate supply and demand for physicians and to regulate the number of students taking up the study of medicine, the subcommittee of the *Planwirtschaft* must establish the number and the age of the physicians engaged in panel practice. The probable number of panel physicians that will be needed for the next few years, on the basis of the figures thus collected, should be published through the press, the academic bureaus of information and the heads of higher institutions of learning. If the number of medical students does not diminish in accordance with prospective needs, admissions to the study of medicine at the universities should be restricted for a time.

RELATION OF THE PHYSICIANS TO THE KRANKENKASSEN

The relations of the physicians to the *Krankenkassen* took up much of the time devoted to discussion. In their journals the representatives of the *Krankenkassen* admit, to be sure, that the present physicians' fees are not commensurate with the advance in prices of commodities, but they emphasize that the high prices in themselves cause an increased incidence of disease, which, in turn, increases the demand for physicians and thus enhances their incomes. This seems to be a very peculiar point of view to take. It overlooks also the fact that, in many places—for example, in Berlin—panel physicians receive per capita fees, and thus do not get a penny more for their additional work. Some instructive statistics were presented by Dr. Hadrich. In 1914, only 27 per cent. of the *Krankenkassen* provided for the insurance of families of the insured; in 1924, 89.25 per cent. had adopted this policy. Since the number of persons insured in the *Krankenkassen* has increased in proportion to the population, there remains a much smaller percentage of the population from which physicians may get private patients. Dr. Hadrich showed also that the Prussian minister of public welfare was more obliging to *Krankenkassen* officials as regards advances in salary than he was to the physicians with respect to their fees. According to a decree of the minister, dated November, 1924, the salary group classification of *Krankenkassen* officials should have been revised. March 21, 1925, the Prussian minister of public welfare ordered the revision not to be made. As a consequence, 3,625 officials are still classified in Groups 7 and 8, whereas only 659 should be so classified. Similarly, there are thirty-seven officials classified in Groups 12 and 13, in place of eleven really entitled to such classification. It is therefore all the more surprising that the *Krankenkassen* should endeavor to prove that physicians have greater incomes now than they had during the war period. In the statistics of a journal of the *Krankenkassen* it is stated that, as against a fee of 6.39 marks in 1913, the fee for a panel physician in 1924 had been advanced to 12.64 marks. Nothing is said, however, of the great increase of family insurance. Then, too, the *Krankenkassen* have the habit of regarding expenditures for assistants, and things of like nature, as physicians' fees. If all these facts are considered, the fees for 1924 are in reality lower than before the war. How unfavorably the abolition of the free choice of physicians has affected the local distribution of physicians may be distinctly seen in mining and industrial regions. Whereas in Berlin there are 764 inhabitants to one physician, in Stuttgart 913, and in Elberfeld 966, in Essen there are 2,101, in Duisburg 2,267 and in Hamborn 2,749.

PRAGUE

(From Our Regular Correspondent)

Oct. 1, 1925.

Decline in Birth Rate

In a recent discussion in the Czechoslovak parliament, the minister of health, Mr. J. Sramek, called attention to the declining birth rate of Czechoslovakia, and to the measures by which he intends to stop the decrease. The highest national birth rate was that of 1870. The war brought about a real drop, which was succeeded by a rapid but temporary increase, and this, in turn, by a decline below the prewar level. Prague shows the most rapid decline of all, with a decrease of 29 per cent. in the last quarter century. The danger is most acute in the highly developed and thickly populated western provinces, while the eastern provinces show a comparatively high birth rate. The result of these conditions is that the population in the industrial western centers is gradually being replaced by those coming from the eastern provinces. The causes for the decline have their roots in both social and public health conditions. Venereal diseases, housing shortage, contraception and induced abortion each has contributed to the result. Attempts to enact legislation allowing, in selected cases, induced abortion for social reasons have helped to spread the practice. The minister does not expect great results from educational campaigns for bigger families but hopes to attain the same end by promotion of hygienic and social protection of the child. The campaign against preventable diseases should both increase fertility and reduce the death rate.

Legislation on Prostitution

Recent articles in several daily papers maintain that the law of 1921 abolishing control of prostitution resulted in an increase of venereal diseases. This legislation was put through owing largely to the activities of the Czech Association for Combating Venereal Diseases, and Prof. F. Samberger, president of the association, has published a defense of its action. The contention that there has been an increase of incidence of venereal diseases is not supported by facts. On the contrary, venereal disease in the army shows a rapid decline. The figures representing the occurrence of venereal infection among drafted men can be taken as an index of its occurrence in the civilian population, and these figures become more favorable every year. Deductions from the number of patients applying to private physicians are valueless. Prostitution conditions are not ideal, but the blame is to be put on the police, who do not favor the new law and are remiss in cooperation. While the brothels have been abolished, the prostitutes frequent the numerous bars and dance halls which have sprung up. In order to raise public discussion about prostitution to a higher level, the Association for the Combating of Venereal Diseases published, in the Czech language, Dr. Abraham Flexner's book on Prostitution in Europe. It was largely due to this book, says Dr. K. Ulryeh, its translator, that the legislation abolishing control of prostitution was introduced in Czechoslovakia. It is unfair to pass judgment on the effects of the law for several reasons: The time that has elapsed since its promulgation is too short; its positive aspects, especially free obligatory treatment, have been hindered by limitation of public funds and difficulties of organization. The minister of health recently declared the intention of the ministry to investigate the incidence of venereal disease, as it was done in 1921. At that time, for a period of one month, all cases of venereal disease were reported without giving the name of the patient. The ministry plans to repeat this once in five years. The next period of reporting will occur next February.

Memorial to Dr. Albert

Recent numbers of Czech medical periodicals contained memorials of the Czech surgeon Dr. Eduard Albert, the twenty-fifth anniversary of whose death occurred, September 25. Dr. Albert was born in the small town of Zamberk, Bohemia, in 1841. He studied medicine in Vienna, and after his graduation remained in the Vienna medical school. He, together with other Czechs, including Rokitansky and Skoda, have contributed considerably to the glory of the Vienna Medical School. From 1888 to his death he was professor of surgery in Vienna. His well known studies on the surgery of the bones and joints are the fundamentals of modern orthopedics. He was unquestionably one of the greatest teachers of medicine in the last century. Although he spent his whole life in the German environment of Vienna he never severed his connections with his nation. He printed many of his publications in Czech medical periodicals and participated in Czech scientific meetings. His pupils can be found not only among the Czech surgeons, such as Mydl and Bakes, but also among those connected with Vienna University, among whom are Hochenegg, Ewald, Lorenz, Schnitzler and Friedlaender.

Antituberculosis Activities

Several new antituberculosis activities can be reported from Czechoslovakia. The present tuberculosis legislation is out of date and does not afford to the health officials sufficient authority over reluctant patients. A joint committee, recruited from various organizations, recently discussed the measures that should be incorporated in a new law. Some, fearful of expense, recommended a law that should compel only notification of tuberculosis cases, tuberculosis deaths, and prescribe disinfection after the death, or change of living quarters of tuberculous persons. Others, with the revenue from social insurance in mind, advocated, in addition, the erection of pavilions for incurables, erection of sanatoriums, payment of fees in tuberculosis institutions from public funds, and erection of dispensaries. In the end, the second schedule was recommended. Another novelty in Czechoslovakia is the initiation in the sanatoriums of the High Tatras of postgraduate courses in tuberculosis along the lines of those given at Davos or Saranac Lake. The courses were organized under the auspices of the Tatra section of the Czechoslovak Association for the Study of Tuberculosis. The High Tatras in Slovakia is developing into an important region for the treatment of tuberculosis, and a group of sanatoriums, both public and private, is located there.

Marriages

DEANE ROCKHOLD BRENGLE, Detroit, to Miss Hazel Mildred McClay of Bowling Green, Ohio, at Wayne, Mich., October 8.

JOSIAH BENJAMIN HIBBITTS, JR., Nashville, Tenn., to Miss Miriam Burkloe Brown of Baltimore, September 29.

SAMUEL FITZSIMMONS RAVENEL, Charleston, S. C., to Miss Katherine Parr Brown of Baltimore, September 29.

LOUIS ARIEL SCHULTZ, New York, to Miss Mary Mathilda Wimenitz of Philadelphia, August 16.

LEWIS BAER FLINN, Baltimore, to Miss Elizabeth Winchester Waters of Elkridge, October 3.

MILTON H. ALEXANDER to Miss Sophie Beatrice Smith, both of New York, October 6.

HARVEY P. CHARLES to Miss Helen Scott Kay, both of Berkeley, Calif., September 3.

MORRIS AARON GOLDBERGER to DR. GERTRUDE FELSHIN, both of New York, September 18.

JOHN H. KARSTEN to Miss Catherine Clausen, both of Horicon, Wis., October 17.

POWELL G. FOX, Raleigh, N. C., to Miss Shirley Kingsbury of Scranton, Pa., June 20.

Deaths

John Henry Wallace Rhein ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1890; professor of neurology, Graduate School of Medicine of the University of Pennsylvania; member of the American Neurological Association, the Philadelphia Pediatric Society, the Philadelphia Neurological Society, the Philadelphia Psychiatric Society, the American Psychiatric Association, the Association for Research in Nervous and Mental Diseases and the Philadelphia Pathological Society; served in the M. C., U. S. Army, during the World War; formerly on the staffs of the Howard, Philadelphia General, Philadelphia Orthopedic and St. Agnes' hospitals and the Philadelphia Home for Incurables; aged 56; died suddenly, October 14.

Henry Clinton Eyman, Massillon, Ohio; Columbus Medical College, 1880; member of the Ohio State Medical Association, and the American Psychiatric Association (president 1919-1920); past president of the American Medico-Psychological Association; professor of nervous and mental diseases, University of Wooster Medical Department, Cleveland, 1891-1905; assistant physician to the Athens State Hospital, 1884-1887; assistant superintendent Toledo State Hospital, 1887-1891; superintendent of the Cleveland State Hospital, 1891-1899, and of the Massillon State Hospital, 1899-1918; aged 69; died, October 7, of cerebral thrombosis.

Edward Wood Walker ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1878; emeritus professor of clinical surgery, University of Cincinnati College of Medicine; member of the American Surgical Association; formerly member of the city board of health; for thrity years on the staff of the Cincinnati General Hospital and at one time on the staff of the German Deaconess Hospital; aged 72; died, October 6.

Marcus Babcock Heyman ⊕ New York; Medical Department of the University of the city of New York, 1890; superintendent of Manhattan State Hospital for the Insane, Ward's Island; formerly assistant superintendent of the Central Islip Hospital; member of the American Psychiatric Association; aged 58; died suddenly, October 7, of acute dilatation of the heart.

Jesse McClain ⊕ Coshocton, Ohio; University of Illinois College of Medicine, Chicago, 1895; past president of the Coshocton County Medical Society; served in the M. C., U. S. Army, during the World War; for many years a member of the city board of health; aged 57; died recently, of cerebral hemorrhage, following a long illness.

Charles Newton Cox ⊕ Brooklyn; University of Pennsylvania School of Medicine, Philadelphia, 1883; past president of the Medical Society of the County of Kings; at various times on the staffs of the Brooklyn Eye and Ear, Bushwick, Bethany-Deaconess' and St. Mary's hospitals; aged 66; died suddenly, October 9, of cerebral hemorrhage.

Joseph Rex Hobensack ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1893; formerly assistant demonstrator and instructor in anatomy at his alma mater; at one time on the staffs of the German and Lankenau hospitals; aged 55; died, October 7, of heart disease.

Ralph O. Dresser ⊕ Paso Robles, Calif.; University of California Medical School, San Francisco, 1901; formerly health officer of Paso Robles; aged 49; died, September 29, at the University Hospital, San Francisco, of acute appendicitis.

Julia Morton Plummer, Cambridge, Mass.; Boston University School of Medicine, 1887; for many years on the staff of the Talitha Cumi Maternity Home and Hospital, Boston; died, October 3, following a long illness.

Frank G. Hackleman ⊕ Rushville, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1882; member of the Indiana Academy of Ophthalmology and Oto-Laryngology; aged 66; died, October 9, following a long illness.

Henry William Heaton, Providence, R. I.; Columbia University College of Physicians and Surgeons, New York, 1889; aged 59; was found dead in a bayou near Clearwater, Fla., October 7, with a bullet wound in his head.

Jesse Robert Talley, Mountain Grove, Mo.; University of Louisville (Ky.) School of Medicine, 1888; member of the Missouri State Medical Association; aged 64; died, September 9, of chronic appendicitis and peritonitis.

Richard Urquhart Burges, Norfolk, Va.; Medical College of Virginia, Richmond, 1895; member of the Medical Society of Virginia; on the staff of the Norfolk Protestant Hospital; aged 52; died in September.

Willis Dana Storrs ⊕ Topeka, Kan.; Kansas Medical College, Topeka, 1895; formerly professor of clinical medicine at his alma mater; aged 55; died, October 5, at Rochester, Minn., of angina pectoris.

Timothy John Bowes, Philadelphia; Jefferson Medical College of Philadelphia, 1891; medical director of the Philadelphia Electric Company since 1907; aged 66; died, October 3, of dilatation of the heart.

Horace M. Lowe, Washington, D. C.; University of Michigan Medical School, Ann Arbor, 1886; served in the U. S. Veterans' Bureau; aged 64; died at the Polyclinic Hospital, New York, October 7.

Patrick H. McGovern ⊕ Milwaukee; University of Pennsylvania School of Medicine, Philadelphia, 1894; aged 63; died, September 30, at the Columbia Hospital, Milwaukee, following a long illness.

Emilien Roch, North Grosvenor Dale, Conn.; University of Montreal Medical Faculty, Montreal, Que., Canada, 1890; member of the Connecticut State Medical Society; aged 61; died, October 5.

Hugh Robert Thomas Ross ⊕ Ladysmith, Wis.; Trinity Medical College, Toronto, Ont., Canada, 1901; aged 48; died, September 26, at Toronto, Ont., of hypertension and chronic myocarditis.

William Howard Knevitt, Brooklyn; Bellevue Hospital Medical College, New York, 1895; on the staff of the Kings County Hospital; aged 63; died, October 13, following a long illness.

Oliver M. Dodson, Baker, Ore.; Willamette University Medical Department, Salem, 1877; Bellevue Hospital Medical College, New York, 1883; Civil War veteran; aged 82; died, October 2.

Frank P. Nourse ⊕ Lewiston, Idaho; Chicago Medical College, 1877; formerly on the staff of St. Joseph's Hospital, where he died, August 30, of uremia, following on operation, aged 73.

John Dade Darby, Oakland, Md.; University of Maryland School of Medicine, Baltimore, 1912; served in the M. C., U. S. Army, during the World War; aged 37; died, October 11.

Jonathan M. Wright, Redlion, Ohio; Medical College of Ohio, Cincinnati, 1869; member of the Ohio State Medical Association; aged 81; died, October 6, of cerebral hemorrhage.

William Kendall Paul, Belmont, N. Y.; Cleveland University of Medicine and Surgery, 1884; member of the Medical Society of the State of New York; aged 64; died, September 5.

George Edward Kincaid, Clinton, Iowa; Barnes Medical College, St. Louis, 1900; member of the Iowa State Medical Society; aged 57; died, October 2, at the Jane Lamb Hospital.

Charles Witt Womack, Lewisburg, Tenn.; Kentucky School of Medicine, Louisville, 1870; member of the Tennessee State Medical Association; aged 87; died, at Nashville, October 1.

William Chambers Phillips ⊕ Clarinda, Iowa; University of Illinois College of Medicine, Chicago, 1903; aged 48; died, October 7, in a hospital at Iowa City, of tumor of the brain.

Henry A. King, Bangor, Me.; Medical School of Maine, Portland, 1888; member of the Maine Medical Association; aged 66; died, July 17, at Brewer, of angina pectoris.

Bailey B. Petty ⊕ Cynthiana, Ky.; Medical College of Ohio, Cincinnati, 1884; aged 66; died, October 5, at the Good Samaritan Hospital, Cincinnati, following an operation.

William Henry Swisher, Dayton, Ohio; Eclectic Medical Institute, Cincinnati, 1898; formerly coroner of Montgomery County; aged 50; died, October 3, of heart disease.

John Henry Carty, Fair Haven, Vt.; University of Michigan Medical School, Ann Arbor, 1882; member of the Vermont State Medical Society; aged 61; died recently.

Eddie Riley, Mayfield, Ky.; University of Louisville School of Medicine, 1912; member of the Kentucky State Medical Association; aged 43; died, October 2, of pellagra.

William French Hazelton ⊕ Bellows Falls, Vt.; Medical Department of Columbia College, New York, 1884; aged 65; died, July 23, at the Rockingham Hospital.

Joseph C. Chapman, Wheeler, Ill.; American Medical College, St. Louis, 1879; president of the State Bank of Commerce; aged 70; died, October 9.

George O. Sikes ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1904; on the staff of the Good Samaritan Hospital; aged 53; died, October 8.

John F. Synder, Rockford, Ill.; Rush Medical College, Chicago, 1882; member of the Illinois State Medical Association; aged 65; died, October 6.

William E. Link, Abbeville, S. C.; Medical College of Georgia, Augusta, 1859; veteran of the Civil War; aged 93; died, October 1, of senility.

Elias Franklin Lane, Green City, Mo. (licensed, Missouri, 1884); Civil War veteran; aged 81; died, September 19, following a long illness.

Charles P. Davis ⊕ Galena, Ind.; University of Louisville School of Medicine, Louisville, 1881; aged 65; died, October 5, of heart disease.

James Wilmer Strong, Philadelphia; Hahnemann Medical College of Philadelphia, 1879; Civil War veteran; aged 84; died, October 8.

James William Mulhern, Des Moines; Marion-Sims College of Medicine, St. Louis, 1892; aged 59; died, October 6, of heart disease.

James Thomas Jenkins ⊕ Carthage, Ill.; Missouri Medical College, St. Louis, 1890; aged 57; died, October 9, following a long illness.

Louis Albert Cazenove, Seminary, Va.; University of Virginia Department of Medicine, Charlottesville, 1875; aged 74; died, October 5.

Louis Jurist ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1880; aged 70; died suddenly, October 9, of heart disease.

Louis L. Hertel, Chicago; Kentucky School of Medicine, Louisville, 1893; aged 62; died, October 10, of carcinoma of the rectum.

Frederick Edwards ⊕ Cairo, N. Y.; University of Vermont College of Medicine, Burlington, 1875; aged 74; died, August 12.

William I. Carlock, Everton, Mo.; St. Louis Medical College, 1873; aged 72; died, October 10, following a long illness.

John H. Sutherland ⊕ St. Albans, W. Va. (licensed, West Virginia, under the Exemption Law); aged 72; died recently.

George W. Marter, Philadelphia; Hahnemann Medical College of Philadelphia, 1878; aged 76; died, September 8.

James Begen, New York; Eclectic Medical College of the City of New York, 1877; aged 75; died, October 7.

George W. Akers, Stafford, Kan.; Indiana Medical College, Indianapolis, 1878; aged 86; died in September.

Ira Norman Zeis ⊕ Carey, Ohio; Toledo Medical College, 1894; aged 57; died, October 7, of septicemia.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

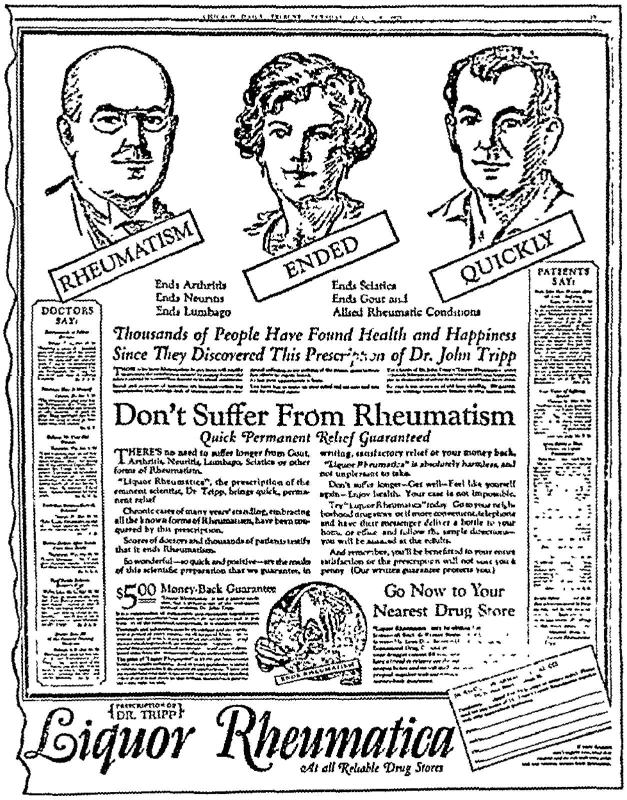
DR. TRIPP'S LIQUOR RHEUMATICA

More Quackery in the Rheumatism Cure Field

During the past year an expensive and high-pressure advertising campaign has been made on a nostrum known as "Dr. Tripp's Liquor Rheumatica." The stuff is put out by a concern calling itself the Norwood Pharmaceutical Co. and having the following officers:

Doak Norwood, President.
Clyde F. Lloyd, Vice-President.
Frank P. Lloyd, Secretary-Treasurer.

Before putting on the newspaper campaign the concern resorted to the old method of trying to work the medical profession first. Physicians—of Chicago, at least—were circularized and urged to use Liquor Rheumatica in cases of "chronic rheumatism." No detailed information seems ever to have been given regarding the composition of the nostrum. The circular addressed to physicians vaguely mentions potassium iodid, "phytolacca-rheuma"—whatever that may be—cimicifuga and calisaya and cinchona compounds. No quantities are given except of those drugs which the federal law demands, in this instance, alcohol 12 per cent.



RHEUMATISM
ENDED
QUICKLY

Ends Arthritis
Ends Neuritis
Ends Lumbago

Ends Sciatica
Ends Gout and
Allied Rheumatic Conditions

DOCTORS SAY:

PATIENTS SAY:

Thousands of People Have Found Health and Happiness Since They Discovered This Prescription of Dr. John Tripp

Don't Suffer From Rheumatism

Quick Permanent Relief Guaranteed

THERE'S no need to suffer longer from Gout, Arthritis, Neuritis, Lumbago, Sciatica or other forms of Rheumatism.

"Liquor Rheumatica", the prescription of the eminent scientist, Dr Tripp, brings quick, permanent relief.

Chronic cases of many years' standing, embracing all the known forms of Rheumatism, have been conquered by this prescription.

Scores of doctors and thousands of patients testify that it ends Rheumatism.

So wonderful—so quick and positive—are the results of this scientific preparation that we guarantee, in writing, satisfactory relief or your money back.

"Liquor Rheumatica" is absolutely harmless, and not unpleasant to take.

Don't suffer longer—Get well—Feel like yourself again—Enjoy health. Your case is not impossible.

Try "Liquor Rheumatica" today. Go to your neighborhood drug store or if more convenient, telephone and have their messenger deliver a bottle to your home or office and follow the simple directions—you will be amazed at the results.

And remember, you'll be benefited to your entire satisfaction or the prescription will not cost you a penny. (Our written guarantee protects you.)

$5.00 Money-Back Guarantee

Go Now to Your Nearest Drug Store

Prescription of Dr. Tripp

Liquor Rheumatica

At all Reliable Drug Stores

Photographic facsimile of a full-page advertisement of "Liquor Rheumatica" that appeared in the Chicago *Tribune.* In the original this measured nearly 1½ ft. by 2 ft.

With the circular letter sent to physicians there was an eight-page leflet containing four testimonials purporting to be reproduced in facsimile from the originals. Three of these were from laymen. The fourth was on the stationery of and signed by Fred E. Stevens, M.D., 449 Peterboro Street, Detroit, Michigan. It was dated November 15, 1924. For several years past the Directory Department of the American Medical Association has been unable to locate Dr. Fred E. Stevens, and his name in the Directory has appeared, therefore, in the "Address Unknown" list. Neither does his name appear in the Detroit telephone directory.

The files of the Bureau of Investigation reveal an interesting coincidence regarding Fred E. Stevens. Some twelve or fifteen years ago a nostrum known as "Dr. John Tripp's Blood Purifier" was being widely advertised under the claim that it was a positive cure for syphilis as well as for rheumatism and female trouble. At that time the Bureau of Investigation accumulated a complete set of follow-up letters put out by the quacks that were selling this stuff. It was then exploited by Sam J. Davis & Co., Hot Springs, Arkansas. Later the nostrum seemed to be pushed by the John Tripp Remedy Company of Detroit, Michigan, and Buffalo, N. Y. In 1916 a letter was received asking for information about "Tripp's Blood Purifier" and stating that one Dr. Fred E. Stevens of Detroit was connected with the exploitation of the nostrum.

"Dr. John Tripp's Blood Purifier" seems to have been on the market for many years, as we have on file an advertising booklet on this product issued in 1883. At that time the stuff was put out from Buffalo, New York. In July, 1914, the Association's Laboratory reported finding large quantities of potassium iodid with traces of cinchona alkaloids in "Dr. John Tripp's Blood Purifier." These facts should be kept in mind because of what follows.

To revert again to Liquor Rheumatica: This nostrum, after being exploited for a short time to the medical profession, was brought to the attention of the public with a flare of full-page newspaper advertisements in Chicago dailies. One of these, from the Chicago *Tribune,* is reproduced in miniature with this article. The advertisements as well as the circulars sent to the general public stressed the alleged fact that physicians recommended the preparation and published testimonials credited to the medical profession. The full names of the physicians are not published but there are given what purport to be their initials and the cities in which these men live. Some of the testimonials thus published are:

Dr. G. F., Chicago, Ill.	Dr. B. H. D., Owen, Wis.
Dr. C. W. R., Holcombe, Wis.	Dr. L. C. L., Alexandria, Ohio.
Dr. E. T. P., Chicago, Ill.	Dr. S. M. R., Chicago, Ill.
Dr. S. W. R., Grantsville, W. Va.	Dr. J. W. W., Chicago, Ill.
Dr. L. L. A., Wauwatosa, Wis.	Dr. M. C. S., Webster, S. D.
Dr. J. H. J., Anderson, Ind.	Dr. W. H. R., Detroit, Mich.
Dr. P. H. D., Juneau, Wis.	Dr. A. C. K., Chicago, Ill.

As already stated, Liquor Rheumatica (Dr. Tripp) is marketed from Chicago by the Norwood Pharmaceutical Co. The "Medical Director" of the company is one G. E. Fosberg, M.D., whose name has long been in the files of the American Medical Association. His name has also appeared at different times in Chicago newspapers in unsavory connections. Incidentally, Fosberg seems to be connected with what is known as the "Physicians Clinical Laboratory," which is at the same address and has the same telephone number as the Liquor Rheumatica concern.

Some of the claims for Liquor Rheumatica are:

> "Now there is given to the world one of the most amazing discoveries ever made by that famous medical scientist, Dr. John Tripp. It is a tried, tested and approved specific for rheumatic conditions and is called Liquor Rheumatica (Dr. Tripp)—not a patent medicine but a prescription of Dr. Tripp's which has stood most exacting tests in cases of arthritis, sciatica, gout, neuritis, myalgia, lumbago and allied conditions."
>
> "Liquor Rheumatica (Dr. Tripp) is foremost a dissolver of poisons and cleanser of the system, loosening up and dissolving the poisonous products stored up in the glands and tissues."
>
> "Try a bottle of Dr. John Tripp's Liquor Rheumatica today—banish rheumatism forever."
>
> "No case is too severe or of too long standing."
>
> "Chronic cases of many years standing, embracing all the known forms of rheumatism, have been conquered by this prescription."
>
> "Liquor Rheumatica, a prescription of the eminent scientist, Dr. Tripp, brings quick permanent relief."

Because of the number of inquiries received regarding this product, one of them coming from as far west as the Pacific Coast, the Association's Laboratory was asked to analyze the nostrum and report its results. The Laboratory report follows:

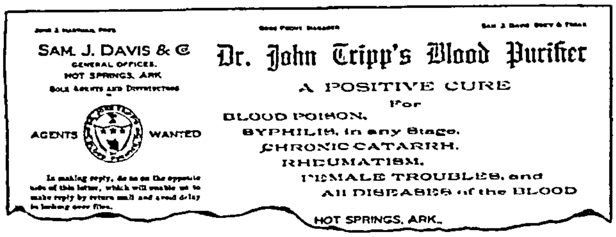
LABORATORY REPORT

"Two original bottles of Dr. Tripp's Liquor Rheumatica (Norwood Pharmaceutical Co., Chicago) were submitted to the A. M. A. Chemical Laboratory for examination. Each bottle contained 230 c.c. (approximately 7¾ fluidounces) of a liquid, with a red-brown suspension, having an aromatic odor and bitter taste. The color appeared to be due chiefly to suspended matter. On standing for some time most of the suspended matter settled, leaving an almost clear, pale reddish-yellow, supernatant liquid. The reaction was faintly acid to litmus.

"No information concerning the composition of Liquor Rheumatica was given on the label of the product except that which the law requires in connection with the presence of alcohol. The label read: 'Contains not more than 12 per cent. alcohol.' In the advertising formerly sent out by the Norwood Pharmaceutical Company, however, the presence of potassium iodid, calisaya, cinchona, cimicifuga, and 'phytolacca-rheuma' were declared, although no amounts or proportions of the several ingredients were given. As calisaya is a variety of cinchona, only four drugs (in addition to alcohol) were present, according to the claims. 'Phytolacca-rheuma' is not the name of any drug known to scientific medicine. Possibly the name may refer to poke root, '*Phytolacca decandra*,' which was formerly described in the Pharmacopeia of the United States.

"Qualitative tests indicated the presence of alcohol, potassium, trace of sodium, trace of calcium, iodid, small amounts of cinchona alkaloids and vegetable extractive. The suspended matter was for the most part vegetable tissue and an insoluble red-brown amorphous substance. Under the microscope, the residue of vegetable tissue consisted apparently of finely powdered red saunders (*santalum rubrum*) to which substance the suspension owes its color. In fact, the vegetable residue consisted almost entirely of minute fragments of wood fibers with yellow walls; in the slightly larger masses in which one cell overlaid another, the color was more reddish. There was a trace of starch present, but nothing to indicate the starchy tissues of cimicifuga or of phytolacca root; nor were there present the needle-shaped calcium oxalate crystals of phytolacca. If extractives of these substances are present, it is probable that a fluid extract was employed. The alcohol-soluble portion of the material contained small amounts of a bitter resin. Tests for salicylates, iron, arsenic, cinchophen, colchicum, phenolphthalein, and emodin bearing drugs, such as rhubarb, cascara and senna, were negative. Quantitative determinations were as follows:

"Specific gravity at 25 C	1.0251
"Alcohol (by volume)	9.3 per cent.
"Total solids	7.0 gm. per 100 c.c.
"Potassium iodid	4.2 gm. per 100 c.c.
"Total alkaloids	0.06 gm. per 100 c.c.
"Water-insoluble material	0.57 gm. per 100 c.c.
"Water-alcohol insoluble	0.40 gm. per 100 c.c.
"Ether extract	0.19 gm. per 100 c.c.



SAM. J. DAVIS & Co.
GENERAL OFFICES.
HOT SPRINGS, ARK.

AGENTS WANTED

In making reply, do so on the opposite side of this letter, which will enable us to make reply by return mail and avoid delay in looking over files.

Dr. John Tripp's Blood Purifier
A POSITIVE CURE
For
BLOOD POISON,
SYPHILIS, in any Stage,
CHRONIC CATARRH,
RHEUMATISM,
FEMALE TROUBLES, and
All DISEASES of the BLOOD
HOT SPRINGS, ARK.

Photographic facsimile of the letterhead of Sam J. Davis & Co. who in 1911 were exploiting "Dr. John Tripp's Blood Purifier." This product seems to have had essentially the same composition as "Dr. Tripp's Liquor Rheumatica."

"From the foregoing examination, it is concluded that Dr. Tripp's Liquor Rheumatica is essentially a weak alcoholic solution of potassium iodid with a dash of cinchona alkaloids, to which has been added some powdered red saunders to which the product largely owes it physical appearance."

Here, then, we have a water-alcohol solution of potassium iodid with a dash of cinchona alkaloids advertised as "one of the most amazing discoveries ever made by that famous medical scientist, Dr. John Tripp." Eleven years ago when the Association's Laboratory analyzed Dr. John Tripp's Blood Purifier, which was then exploited as a cure for syphilis, the product was found to be a water-alcohol solution of potassium iodid with traces of cinchona alkaloid. From these analyses evidently Tripp's syphilis cure, alleged to have been puffed by Dr. Fred E. Stevens of Detroit, is essentially the same substance as Tripp's rheumatism cure now being puffed by Fred E. Stevens.

The alleged "amazing discovery" of Dr. John Tripp was neither amazing nor a discovery. For years the medical profession has used iodids in the treatment of chronic rheumatism, especially in those cases in which a syphilitic factor may be suspected. Before administering iodids, however, the physician determines whether or not these powerful drugs are contra-indicated. The purchaser of Liquor Rheumatica, of course, has no means of protecting himself against a dosing with iodids that may prove disastrous, because he is given no information regarding the presence of these drugs, and if he were, would have no knowledge of the dangers involved in their use. There is no excuse for the exploitation of a mixture such as Liquor Rheumatica in the form of a "home remedy" for self-drugging.

Correspondence

"IS ACRODYNIA A NEW DISEASE?"

To the Editor:—Your editorial on this subject (THE JOURNAL, October 17, p. 1225) interests me greatly. You speak of "the name acrodynia which Weston introduced to differentiate the disorder from pellagra." Allow me to call your attention to a paper of my own entitled "Acrodynia: Its Place in Medicine and Its Relation to Pellagra" (*Am. J. Trop. Med.* **1**:291 [Sept.] 1921). In this paper an effort is made to trace the history of this strange affection. One will find there recorded that, Aug. 26, 1828, M. Chomel (*Arch. gén. de méd.* **18**) called the attention of the Academy of Medicine to the disease which was designated épidémie de Paris, and a commission was named to study it. The first reference to this outbreak which I have been able to find was that of Genest in 1828 under the title, Recherches sur l'affection épidémique qui regne maintenant à Paris (*Arch. gén. de méd.* **18**). It is interesting to read that in one of the Paris cases the great Louis performed the necropsy and exposed the spinal cord and the nerve trunks searching for the lesion, without result of a positive kind.

In 1848 the Irishman Graves, in his Clinical Lectures, gave a splendid account of the disease picture.

My own experience with acrodynia did not occur until after the appearance of pellagra in the South. From 1907 to 1915, it occasionally happened that I felt justified in making the diagnosis of acrodynia. I recall one woman whom I found in my waiting room with her shoes off because of the terrific pain in the feet. In a number of cases after the diagnosis of acrodynia had been made, the unmistakable picture of pellagra developed. The occurrence of a palmar and plantar skin lesion in pellagra is by no means common, but it does occasionally occur and in every case in which I first recorded the diagnosis of acrodynia a revision had to be made and pellagra substituted.

Those interested will find in the French literature of 1828-1830 many excellent accounts of pellagra among the acrodynia cases.

It is well worth while in this connection to remember that the whole skin surface at various times has been affected by the pellagrous lesion. Extreme pain and other sensory subjective symptoms, especially in the extremities, is not infrequent in pellagra and, in fact, no symptoms recorded in acrodynia are lacking in pellagra, if a sufficiently large series of cases is considered.

After a study of about 2,000 cases of pellagra and after seeing during this period numerous illustrations of what was seen in Paris during the epidemic of 1828-1830, I felt justified in the belief that acrodynia is a type of pellagra, and that if the case is kept under observation over a considerable period the justification will be found in the occurrence of the typical pellagra picture.

Certainly the term acrodynia was coined in Paris about 1830. Edward Jenner Wood, M.D., Wilmington, N. C.

COMPLETE ANURIA

To the Editor:—The following report of a case of complete anuria should have been reported ten years ago; it is sent now because of current interest in such cases.

Mrs. L., aged 35, had an operation for suspension of the right kidney in 1903, and another operation of the same character on the same kidney in 1905, both operations having been performed elsewhere. When I first examined her, a large mass could be palpated in the right side of the abdomen. A diagnosis of hydronephrosis of the right kidney was made, and nephrectomy of the right kidney was done, May 4, 1915. A preliminary cystoscopic examination and pyelogram to establish the presence of the left kidney were not made.

Twenty-four hours after operation, the patient did not urinate. On catheterization, 2 ounces of urine was obtained. From that time on, no urine was excreted. The patient lived twenty-three days.

At necropsy the left kidney was discovered to be absent (congenital).

The patient had all her mental faculties to the last, with no symptoms of uremia at any time. There was profuse sweating, with a disagreeable, pungent, urine-like odor always present in her room, and even in the corridor outside. The case emphasizes the importance of making preliminary examination to establish the presence of the other kidney before nephrectomy. Few cases are reported in which the patient lived over twenty days.

A. H. Farnsworth, M.D., Grand Island, Neb.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE MELLON INSTITUTE AND POSTUM CEREAL

To the Editor:—The Mellon Institute of Industrial Research, University of Pittsburgh, has sent out some research material, "Coffee Drinking by the Aged" and "Coffee Drinking by Children." Will you please tell me who or what they are, and if this is propaganda?

H. N. Jennett, M.D., Kansas City, Mo.

Answer.—The Mellon Institute of Industrial Research of the University of Pittsburgh is said to have for its essential aim the creation of new knowledge by scientific investigation in accordance with the Industrial Fellowship system. The institution was founded by Messrs. Andrew W. Mellon and Richard B. Mellon. An industrial concern or an association of industrial concerns may donate a certain sum of money for an industrial fellowship in which will be done work on a problem or group of problems that are of interest to the donors. In the instance referred to by Dr. Jennett, the Mellon Institute has recently sent out the two articles "Coffee Drinking by the Aged" and "Coffee Drinking by Children." These are accompanied by an introductory letter from the Mellon Institute stating that they are the result of some research that the institute is carrying on in a scientific investigation of "The Rôle of Hot Beverages in the Diet." The letter further states that this research is being carried out through an industrial fellowship. The two articles already mentioned seemed such obvious ex parte statements derogatory to coffee and caffein beverages that the Mellon Institute was written to and asked whether the donor of the industrial fellowship under which this work was being done was a commercial organization interested in the sale of coffee substitutes. The institute replied that with the permission of the fellowship donor they would gladly give the information asked for and stated that a copy of the request for information had been forwarded to the donor. A few days later a second letter came stating that the donor of the fellowship, Postum Cereal Company, Inc., Battle Creek, Mich., had granted permission to give the information desired. The company had stated also that other inquiries should be treated the same way. The Postum Cereal Company, Inc., shows an intelligent appreciation of the public's rights in the matter. Such industrial fellowships may well prove of incalculable value to the industries of the nation and the general plan for carrying on such work is altogether admirable. In sending out the results of work of this kind, however, public interest would be better served if the Mellon Institute would plainly state that the work is being financed by an industrial concern, and frankly give the line of business in which this concern is engaged.

EXCESSIVE PERSPIRATION

To the Editor:—I have become accustomed to bring my difficulties before you; this one is of a most distressing and personal nature. For ten years I have practiced surgery under the handicap of a most profuse activity of the sweat glands of the head and face. Incased within a Mayo type mask, I yet leak through each crevice and fold. The physical discomfort is enormous, and the mental worry over fear of infecting the wound through dropping globules is even greater. Can you make any suggestion as to eradication or additional safeguards? Normally of a nervous temperament, complicated surgery increases my rainfall. Atropin, in large dosage, gives considerable relief, but the rapid heart action, dry throat and tongue, etc., are unpleasant and, I fear, not particularly good for my well being. Would the employment of a small electric fan directed upward toward the face be an added danger to the patient, in your opinion? If published, please use initials only.

R. E. S.

Answer.—This seems to be purely a physiologic hyperhidrosis, very difficult to control. Aluminum chlorid solution is the best local application for it, used in a strength of 25 per cent. solution in water. Before it is applied, the surfaces should be rinsed so that they are free from grease or soap. A few drops of this solution is lightly applied over the surface. This can be repeated three days in succession and then should not be used for several days more. It usually causes marked reduction in the amount of sweating. Aluminum chlorid is a strong irritant, and this solution must be applied with care. If it produces irritation it should be washed off with plenty of water. The only thing that would produce an actual change in the sweat apparatus would be the application of roentgen rays to the point of causing slight atrophy of the sweat follicles. This has to be done very cautiously and should be done only by one who is skilful in the therapeutic application of roentgen rays. Sometimes, with the amount of the application of roentgen rays that one is warranted in giving, this method fails, but it can often be successfully carried out.

GLY-SO-IODONATE — "G. S. I."

To the Editor:—As surgeon for several industrial plants located in this city, I have had brought to my attention the products of the National Medical Research Laboratories, Milwaukee, which get out a surgical fluid called G. S. I. which they claim to be superior to tincture of iodin and all other known antiseptics. They do not publish the formula. Will you kindly investigate and inform me as to this preparation?

C. E. Burt, M.D., *New Bedford, Mass.*

Answer.—Gly-So-Iodonate ("G. S. I.") was refused admission to New and Nonofficial Remedies (The Journal, Dec. 22, 1923, p. 2118) because it was exploited under a nondescriptive and misleading name and with a statement of composition not only chemically absurd but obviously incorrect. Examination showed it to possess properties which were virtually "those of a solution of potassium mercuric iodid to which had been added a chemical hodge podge." In the same issue of The Journal, editorial comment was made on the Council on Pharmacy and Chemistry's findings concerning the unscientific character of the claims made for "G. S. I." The attention of the Bureau of Investigation having been called to the advertising methods used to exploit this preparation, an inquiry was made among a number of hospitals and industrial concerns the names of which appeared in "A Partial List of Representative Industries Protecting Their Many Thousands of Employees with G. S. I.," a circular sent out by the exploiters. The published result of this inquiry (The Journal, June 7, 1924, p. 1881) revealed no enthusiastic users of "G. S. I.," and showed that the exploiters were using some references as misleading as the "formula" of their nostrum.

PONNDORF'S VACCINATION

To the Editor:—Kindly discuss Ponndorf's vaccination, and give references. Please use initials only. J. V. S., Chicago.

ANSWER.—Most of the interest in Ponndorf vaccination therapy has been confined to Europe. Some European articles have been abstracted in THE JOURNAL; for instance,

La Baume, F. S.: *Med. Klin.* **17:** 1289 (Oct. 23) 1921; abstr., THE JOURNAL, Jan. 14, 1922, p. 154.
Simon, W. V.: *Ztschr. f. Tuberc.* **35:** 449 (March) 1922; abstr., THE JOURNAL, May 13, 1922, p. 1502.
Chéinisse, L.: *Presse méd.* **31:** 325 (April 4-11) 1923; abstr. THE JOURNAL, June 9, 1923, p. 1738.
Paul, G.: *Wien. klin. Wchnschr.* **38:** 984 (Sept.) 1925; abstr., THE JOURNAL, Oct. 17, 1925, p. 1265.

According to the first of these, the method is as follows: "About twenty scarifications are made in the skin of the upper arm, each as long as a finger, stopping just short of the papillary layer, the scratches bleeding slightly. Then a concentrated tuberculin is dropped into the malpighian layer of the skin thus opened up by the scratches. As almost all diseases accompanied by eruptions immunize against further attacks, it seems rational to assume that by inducing intense esophylactic processes in the malpighian prickle layer of the skin, in this way or its equivalent, a tendency to immunization might be induced."

As to its efficacy as treatment, no concord of opinion exists.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 10-11. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville.

CONNECTICUT: New Haven, Nov. 10. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 8-9-10. Pres. Med. Coun., Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

MAINE: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Baltimore, Dec. 8-11. Sec., Reg. Bd., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore. Sec., Homeo. Bd., Dr. J. S. Garrison, 517 Old Orchard Rd., Baltimore.

MASSACHUSETTS: Boston, Nov. 10-12. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

NEVADA: Carson City, Nov. 2. Sec., Dr. Simeon L. Lee, Carson City.

NORTH CAROLINA: Raleigh, Nov. 25 (Endorsement of Credentials only). Sec., Dr. Kemp P. B. Bonner, Morehead City.

OHIO: Columbus, Dec. 2-4. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

PHILIPPINE ISLANDS: Manila, Nov. 10. Sec., Dr. Jose V. Gloria, 686 Rizal Ave., Manila.

SOUTH CAROLINA: Columbia, Nov. 10. Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Dallas, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-919 Mercantile Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 8-11. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

Florida June Examination

Dr. William M. Rowlett, secretary of the Florida Board of Medical Examiners, reports the written examination held at Tampa, June 15-16, 1925. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 251 candidates examined, 204 passed and 47 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1911)	78.5
University of Alabama School of Medicine	(1910)	81.2
Columbian University	(1900)	83.4
George Washington University Medical School	(1907)	76.2
Atlanta College of Physicians and Surgeons	(1904)	80.2
(1912) 79.8, 82.1, (1913) 75		
Atlanta Medical College	(1893)	75
(1914) 75, 77.7, 77.8, 84.9, (1915) 79.5, 82.6, (1916) 75.6		
Atlanta School of Medicine....(1907) 75.9, (1908) 75,	(1910)	77.3, 80.1,
(1911) 78.1, 81.6, 82.7, (1912) 78.2		
Emory University School of Medicine	(1918)	75, 75.6,
81.7, (1919) 85.4, (1921) 75, 88.6, (1922) 75, 76.6, 78.5, (1923) 77.5, 78.7, 80.5, (1924) 80.3, 82.2, 83, 83.2, 84.7, (1925) 78, 79, 80.9, 81.8, 82, 82.3, 82.5, 82.6, 83.7, 84.2, 84.4, 84.6, 85.8, 85.9, 85.9, 86.8, 86.9, 87.1, 87.6, 88, 89.2, 91.5		
University of Georgia Medical Department	(1891)	76.8,
(1901) 75, (1902) 75, (1908) 75, (1916) 77.8, (1920) 82.4, (1922) 82.2, 88.4, (1924) 78.1, 79.5, 83.3, (1925) 81, 81.4		
Bennett Medical College	(1907)	81.9
Chicago College of Medicine and Surgery	(1916)	78.4
College of Physicians and Surgeons, Chicago	(1906)	80.6
Hahnemann Medical College and Hospital, Chicago	(1911)	80.
Loyola University School of Medicine	(1918)	82.9
Northwestern University Medical School...(1894) 82.6,	(1915)	79.7,
(1924) 77.9, 84.8, 86.7, 88, (1925) 82.3		
Rush Medical College.......(1892) 76.9, (1897) 77.9,	(1900)	75,
(1903) 82.5, (1913) 86.3, (1916) 81.5		
University of Illinois College of Medicine	(1925)	85.3
Indiana University School of Medicine....(1917) 81.9,	(1923)	83.8,
(1924) 81.4, (1925) 82.4, 84		
Medical College of [illegible]	(1904)	75.8
Drake University	(1903)	79.5
State University of [illegible]	(1897)	75
Kentucky School of Medicine	(1900)	75.7
Louisville Medical College	(1894)	79.1
University of Louisville School of Med.....(1894) 76,	(1921)	82.5
Tulane University of Louisiana School of Medicine	(1913)	79.5
(1920) 83.9, (1921) 77.3, (1922) 80, (1923) 77, 77.8, 86, (1924) 87.6, (1925) 82.8, 83		
Medical College of Louisiana.............(1909) 78.8,	(1910)	79.7
Baltimore Medical College	(1906)	76.8
College of Physicians and Surgeons, Baltimore	(1909)	79.6
Maryland Medical College..........(1904) 76.5, 77.7,	(1905)	75, 75.3
University of Maryland, School of Medicine	(1914)	84.9
Boston University School of Medicine.....(1900) 83.7,	(1924)	82
Harvard Univ....(1895) 82.7, (1903) 75, (1917) 85.3,	(1924)	85.4
Tufts College Medical School, Boston......(1905) 79.6,	(1916)	75,
(1922) 88.8		
University of Michigan Medical School	(1913)	81.5
University of Minnesota Medical School....(1921) 79.9,	(1924)	82.9
Kansas City Medical College	(1898)	81.3
St. Louis University School of Medicine	(1924)	83.9
University Medical College of Kansas City	(1900)	75
Washington University School of Medicine	(1924)	81
John A. Creighton Medical College	(1906)	75
Columbia University College of Phys. and Surgs	(1905)	79.9
Cornell University Medical College	(1923)	83.3
Long Island College Hospital	(1922)	80.6, 87.8
New York Homeopathic Med. Coll. and Flower Hosp	(1921)	87.1
New York University Medical College	(1888)	82.3
Syracuse University College of Medicine	(1923)	81.2
University and Bellevue Hospital Medical College	(1905)	76
University of North Carolina, School of Medicine	(1910)	77.8
Ohio State University College of Medicine..(1921) 82,	(1923)	80.3
Starling Medical College	[illegible]	82.1
University of Cincinnati College of [illegible]		80.7
Hahnemann Medical College and Hos[illegible]		75
Jefferson Medical College of Philadelphia..(1912) 78.6,	(1922)	80.8,
81.4, (1923) 82.6, (1924) 87 3		
Medico-Chirurgical College of Philadelphia	(1914)	81.5
Temple University Department of Medicine	(1911)	84.8
University of Pennsylvania School of Medicine	(1894)	77.2,
(1898) 75, (1901) 81.7, (1904) 82.3, (1911) 80.8, (1919) 84.6, (1920) 83.4, (1923) 82.4		
Western Pennsylvania Medical College	(1907)	80 5
Medical College of the State of South Carolina	(1911)	78.5,
(1914) 85.6, (1915) 75, 78.4, (1916) 81.5, (1920) 82.1, (1922) 85.5		
Meharry Medical College	(1917)	75
Memphis Hospital Medical College	(1904)	75
University of Tennessee College of Medicine	(1925)	81.9
Vanderbilt University School of Medicine...(1900) 75,	(1914)	77.5,
(1915) 82.5, (1917) 85, (1922) 82.3, (1923) 77.6, (1924) 81.6		
University of Texas Department of Medicine	(1919)	78.7
University of Vermont College of Medicine	(1897)	78.1
Medical College of Virginia..(1909) 84.8, (1923) 82.7,	(1925)	82.6
University College of Medicine, Richmond	(1913)	77
University of Virginia Dept. of Medicine..(1901) 77.4,	(1924)	84.6
Milwaukee Medical College	(1912)	77.7
McGill University Faculty of Medicine, Montreal	(1897)	84.6
University of Toronto Faculty of Medicine, Ontario	(1917)	78.2
Licentiate of the Royal College of Surgeons, Edinburgh	(1907)	82.9

FAILED

College	Year Grad.	Per Cent
Atlanta College of Phys. and Surgs.......(1903) 71.8,	(1906)	66.3, 66.3,
66.9, (1908) 59.4, (1911) 68.5, 69.2		
Atlanta Medical College..................(1914) 66.4,	(1915)	73.7
Atlanta School of Medicine..............(1911) 65.8,	(1913)	66
Emory University School of Medicine	(1922)	65.3
Georgia College of Eclectic Medicine and Surgery	(1909)	68.2
Southern College of Medicine and Surgery	(1913)	73.7
University of Georgia........(1893) 69.5, (1907) 61.3,	(1911)	71
Loyola University School of Medicine	(1916)	70.6
Northwestern University Medical School	(1902)	72.9
(1905) 73.2, (1909) 68 5		
College of Physicians and Surgeons, Chicago	(1908)	68
Fort Wayne College of Medicine	(1896)	61.9
University of Louisville School of Med...(1892) 54.2,	(1912)	70.5
Medical College of Louisiana.............(1906) 72.8,	(1912)	70
Baltimore Medical College	(1906)	67.9
Saginaw Valley Medical College	(1899)	60.8
University of Michigan Medical School	(1880)	66.1
Eclectic Medical College, Cincinnati	(1910)	73
Jefferson Medical College of Philadelphia	(1887)	67.5,
(1905) 73.8, (1912) 73.4		
Medico-Chirurgical College of Philadelphia	(1899)	60.9
[illegible] llege.............(1901) 55.4,	(1904)	61.2
[illegible] al College	(1909)	69.8
[illegible]	(1905)	69.5
[illegible] hool of Medicine...(1883) 63, (1893) 68.5,		69.6,
(1914) 69.7		
University of Vermont College of Medicine	(1882)	65.9
University College of Medicine, Richmond	(1905)	73
University of Havana, Cuba	(1923)*	57.1
University of Kharkov, Russia	(1905)*	68.3

* Graduation not verified by the American Medical Association.

Book Notices

Pediatric Nursing. A Textbook for Nurses. By Abraham Levinson, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School. Cloth. Price, $2.50. Pp. 251, with 28 illustrations. Philadelphia: Lea & Febiger, 1925.

It requires a fine sense of discrimination to write a textbook for nurses. It is difficult to present the subject matter at the proper level for the student or graduate nurse. If the material presented is too technical, the wearied nurse cannot comprehend or nods asleep during her study hour. Levinson evidently had this in mind when he prepared this little book. He has given a great deal of detailed information in concise form, and he has spoken in simple English so that all may understand. A nurse who will carefully prepare herself with this volume in hand will know all the facts necessary in nursing sick children. It is important that nurses should read well constructed texts. Levinson discusses the anatomy, physiology and general care of infants. He also gives instruction to the nurse in the general methods of examination. He shows her how to hold the child, how to prepare the patient for the various examinations, how to collect the urine, how to take the temperature. Indeed, he emphasizes the nursing technic that should accompany a well conducted physical examination. His chapter on treatment is short and to the point, and he gives a table of doses of various drugs which should be invaluable to the bedside nurse. He considers briefly a group of the more common diseases, and indicates the proper treatment of each. In the concluding chapters he gives some good advice based on psychology and common sense. He has written a very readable book. However, it may be said of nurses that no matter how many college degrees they bear, how many honorary keys they have won or how many textbooks they have read, the art of nursing is learned in the hospital ward. The gift of administering gently to the sick is heaven born. The good nurse has a gentle hand and a noble heart, and strives to serve and to heal.

Die medikamentöse Behandlung der Harnrohrengonorrhöe des Mannes und deren pharmakologische Grundlagen. Von Dr. Alfred Perutz, Privat-Dozent für Haut- und Geschlechtskrankheiten an der Wiener Universität. Paper. Price, 9 marks. Pp. 266, with 13 illustrations. Berlin: Urban & Schwarzenberg, 1925.

This book approaches the treatment of urethral gonorrhea in the male from a medicopharmacologic point of view only. In the introductory chapters the nerve supply of the male genito-urinary apparatus is discussed at length and its differential reaction toward drugs analyzed as to the subsequent response of the parts involved, particularly the vas deferens and the epididymis. Valuable information is conveyed by the analysis of the specific action of the drugs to be employed and how antagonistic effects may be prevented in combining these, avoiding incompatibility produced by faulty concentration or inappropriate mixture. Special stress is laid on the general therapeutic and dietetic regimen. After these general principles are elucidated, the special forms of treatment are taken up, the pharmacodynamic action of the various medications always being considered. The serodiagnosis of gonorrhea and passive and active immunization are also explained. A valuable chapter deals with parenteral protein therapy, which recently has aroused much attention. The closing chapters are devoted to a discussion of the complications occurring during the course of urethral gonorrhea and to a survey of the provocatory methods.

Diseases of the Bronchi, Lungs and Pleura. By Frederick T. Lord, M.D., Instructor in Medicine, Harvard Medical School. Second edition. Cloth. Price, $8. Pp. 776, with 110 illustrations. Philadelphia: Lea & Febiger, 1925.

In this edition, Dr. Lord has accumulated the newer contributions to his subject during the last decade, especially along bacteriologic and immunologic lines and in the advance of thoracic surgery. The literature as a whole is reviewed up to 1923. In its present shape, the book represents a reliable and rather conservative guide through the vast and bewildering field which it covers with a remarkable completeness as to the variety of pathologic conditions. The text abounds in references, and the fact that Dr. Lord always refers to the original works and the classics in medicine makes it particularly valuable as a reference book. A new chapter on pulmonary tuberculosis is added, which does not reach the standard of the other chapters. While divergent opinions, wherever they arise, are objectively enumerated, the expression of a personal opinion and the results of the author's vast experiences are rather missed throughout the book; this applies especially to all discussions on therapy. A reader without experience will find little advice from Dr. Lord, but a wealth of statistical data and strictly objective compilations. It is felt that the great variety of even very rare conditions discussed is somewhat at the cost of the completeness of the individual subjects. All this makes this book valuable in the hands of the experienced reader, but less suitable as a textbook for the beginner in this special field of medicine.

Diabetic Diet. A Handbook for Diabetics. By A. Doris McHenry, B.A., and Marjorie M. Cooper, B.A. With a Preface by J. A. Gilchrist, B.A., and M.D., and F. G. Banting, M.C., M.B., M.R.C.S. Cloth. Price, $2. Pp. 62. New York: Harper & Brothers, 1925.

There are now available numerous books on diet for the patient with diabetes. The present little book emanates from the Banting clinic in Canada. It presents the very essentials of the subject in brief form, including discussions of weights and measures and the routine analysis of urine. Most of the sixty pages are filled with recipes. The book is safe for public recommendation.

Internal Secretion and the Ductless Glands. By Swale Vincent, LL.D., D.Sc., M.D., Professor of Physiology in the University of London. Third edition. Cloth. Price, $10. Pp. 463, with 112 illustrations. New York: Physicians and Surgeons Book Company, 1925.

Physicians will welcome the new edition of this standard and scholarly book. The author has devoted more than twenty-five years to intensive study and research in the field of the endocrine glands. The exposition of the physiology and pathology of the ductless glands is comprehensive, clear and thorough, and his conclusions are rational when conflicting views of uncertain relationships are dealt with. The present edition contains much new matter, especially in the chapter on the pancreas and the chapter on the reproductive organs. The number of illustrations has been increased from 105 to 112, and a short chapter on organotherapy has been added to the book. The portions dealing with clinical subjects have been still further expanded, and this will make the book still more useful to medical students and practitioners.

Hand-Atlas of Clinical Anatomy. By A. C. Eycleshymer, B.S., Ph.D., M.D., Dean of College of Medicine and Director of Department of Anatomy, College of Medicine, University of Illinois, and Tom Jones, B.F.A., Director of Anatomical Illustration and Instructor in Anatomy, College of Medicine, University of Illinois. With special dissections by O. E. Nadeau, B.S., M.D., Associate in Surgery, University of Illinois. Cloth. Price, $11. Pp. 424, with 395 illustrations. Philadelphia: Lea & Febiger, 1925.

During the war, a special manual of surgical anatomy was prepared under the direction of Dr. Eycleshymer. It met immediate acceptance and popularity and quickly reached an edition of 10,000 copies. The present edition of this work includes the anatomy of the female, and the addition of some 150 new and original plates and 207 new drawings. There is a complete explanatory index which makes the descriptive text unnecessary. This volume is one of the most valuable atlases available to the medical student or the surgeon.

Manuel élémentaire de puériculture. A l'usage des mères, des infirmières visiteuses, du personnel des crèches, pouponnières, chambres d'allaitement, garderies, consultations de nourrissons et des diverses œuvres d'assistance a la maternité. Par Dr. Clotilde Mulon. Médecin-chef de la pouponniere du camouflage. Préface de M. le Professeur Marfan, Membre de l'Académie de médecine. Second edition. Paper. Price, 10 francs. Pp. 234, with 21 illustrations. Paris: Masson et Cie, 1925.

This book is similar to many of a like nature that have appeared in this country. It begins with a discussion of infant mortality, and one is struck with the fact that deaths from diarrhea are given a first place and apparently occur three times as frequently as do respiratory conditions in

France. This chapter is followed by chapters on hygiene, preparation for delivery, physiology of nutrition, care of the premature or debilitated infant, breast nursing, artificial nursing, weaning, the diseases of children, instruction and care in dispensaries, infant welfare stations, and day nurseries. The volume closes with chapters on the laws of France governing child care and protection.

Medicolegal

Evidence of Reputation of Mental Condition Barred

(In re Wah-kon-tah-he-um-pah's Estate (Okla.), 234 Pac. R. 210)

The Supreme Court of Oklahoma, in affirming a judgment admitting to probate the will of an Osage allotee, says that the contestants complained because the trial court would not permit them to show by one witness that the testatrix was generally known and referred to by her acquaintances as the "old crazy woman." No case was pointed out to the supreme court wherein evidence of the general reputation of being crazy was admitted, in the trial of a will contest, as bearing on testamentary capacity, or the lack thereof, of the testator. This court knows of no such case. In the absence of a case deciding the point, this court is inclined to think that evidence of general reputation as to mental capacity or incapacity of a party making a will is not admissible. Even if the court had admitted the proof of general reputation offered, and all of the contestants' witnesses had testified that the testatrix had the general reputation of being an old crazy woman, still the court should apply the rules laid down by the cases in determining the testamentary capacity or lack thereof; and if the testatrix should measure up to the rules laid down by this court for determining mental capacity, as applied at the time the will was made, the court would be constrained to follow the decided cases, rather than evidence of general reputation. This court thinks that evidence of general reputation of mental condition of the testatrix was not admissible for the purpose of determining testamentary capacity, or the lack thereof, at the time the will was made, and that the trial court did not err in excluding such evidence.

Identification of Roentgenograms—Basis of Testimony

(Mattice v. Terminal R. R. Ass'n of St. Louis (Mo.), 270 S. W. R. 306)

The Supreme Court of Missouri, Division No. 1, says that in this action for personal injuries a physician testified that he was a roentgen-ray specialist, had "examined x-rayically the right arm of the plaintiff," and had the "x-rays" that he made at that time. The plaintiff offered the roentgenograms in evidence in connection with the testimony of another physician. Objection being made that they had not been sufficiently identified, the plaintiff did not press his offer but later recalled the roentgenologist. The latter testified that one of the roentgenograms was a roentgenogram of the plaintiff's right forearm; that it bore the title "Mr. Mattice, File 17927, Nov. 1922," which was the date the roentgenogram was made, adding: "I didn't examine the hand myself, any more than just the x-ray; no physical examination at all." On cross-examination he testified that he took the pictures himself, but did not do the development of them himself; that "you get them out of the dark room, and you send them back, and watch them after they are developed and check these things all during the process. Although I wasn't in the dark room, I know this is the same plate that I took of plaintiff's arm because you go in there as soon as they are in the hypo; you see these things before the process of silver elimination is complete. . . . I am positive that this is the plate that I took, although it passed out of my hands and stayed a while in the dark room." Again he testified: "These pictures were developed immediately after the exposures were made, before the man leaves the office. They are checked up before he gets out. We do not have more than one patient's plates in there at a time, that is, being developed at the same time. We take a patient and finish him up, especially on work of this sort. . . . I have an idea we did have some other broken arms that same morning, but that is a roentgenogram of this man's arm." Such being the testimony, and the defendant standing on its objection to the introduction of the roentgenograms in evidence, plaintiff's counsel withdrew his offer of the roentgenograms.

The roentgenologist had also been examined at length concerning what was shown by the roentgenograms, and at the close of the evidence defendant's counsel asked the trial court to exclude the roentgenologists' testimony and to instruct the jury to disregard it, on the ground that his testimony was based on plates that he held in his hand and from which he testified, which had not been sufficiently established to justify him in testifying from them. The trial court refused that request; and the supreme court holds that was not error, under all the circumstances. The trial court did not have an opportunity to rule directly on the admissibility of the roentgenograms, because the plaintiff withdrew his offer of them, but the supreme court concludes that there was sufficient identification of them to make them admissible in evidence, and to make them the proper basis, as the trial court held, of the testimony of the roentgenologist. However, it seems clear to the supreme court that if the evidence was insufficient to warrant the introduction of the roentgenograms themselves, as pictures of the arm of the plaintiff, then the evidence was equally insufficient as a basis for the admission of testimony by the witness as to what they showed as to the condition of the plaintiff's arm. There was no theory or situation developed such as made the roentgenograms or testimony as to what they showed valuable or admissible except they were pictures of the plaintiff's arm and wrist.

Privilege Not Physician's—None Under Workmen's Act

(Doty et al. v. Crystal Ice & Fuel Co. (Kan.), 235 Pac. R. 96)

The Supreme Court of Kansas says that in this action, brought by the widow of a workman on behalf of herself and minor children as dependents under the workmen's compensation act, the plaintiffs endeavored to show that the death of the workman was the result of an injury which he sustained, January 20, by falling from a scaffold and striking his head either on the floor or on an iron pipe. He lay off three days and then returned to work, making no complaint about his injuries. About May 20 he was taken sick, and he died, May 31. The physician's certificate showed that death resulted from cerebrospinal meningitis. The man's physical condition from the time of the injury until his death was detailed by the plaintiffs and other witnesses. The nurse who attended him in his last sickness testified that there was nothing about his symptoms to indicate spinal meningitis, though the attending physician took a specimen of the spinal fluid. Two physicians testified from a hypothetic question that death resulted, or might have resulted, from the injury. The defendant called the physician who attended the man in his last sickness and who made out the death certificate, and asked him several questions pertaining to the cause of death, the taking of specimens of spinal fluid, and the laboratory test. Counsel for the plaintiffs advised the witness that he was privileged to refuse to testify. The widow for herself waived the privilege of the witness. The trial court held that the privilege was personal to the physician, who claimed the privilege and was not required to testify. But the supreme court holds that the provision of the Civil Code of Kansas that a physician or surgeon shall be incompetent to testify concerning any communication made to him by his patient with reference to any physical disease or injury or concerning any knowledge obtained by a personal examination of the patient, without the consent of the patient, does not create a privilege personal to the physician, and that the trial court erred in holding the privilege created to be a privilege personal to the physician. Furthermore, it seems clear to the supreme court that the plaintiffs waived the privilege of the witness, if one existed, not only by the waiver by the widow in open court, but by the nature of the evidence offered by them.

Still another reason why the ruling of the trial court was erroneous was that the provision of the civil code referred to above has no application to the testimony of physicians in claims for compensation under the workmen's compensation act. That act embodies a plan to compensate workmen, or their dependents, for loss of earnings because of personal injuries received by the workman, arising under the circumstances designated in the act. Necessarily, the inquiry in every case is the nature and extent of the physical injury produced by the accident, which includes, of course, whether the physical injury, or the death, was caused by the accident or resulted from other causes. This, ordinarily, is essentially a medical question, which can be determined only by the testimony of a physician who examined or treated the workman. Hence the Kansas statute provides for such examination and the use of the testimony of the physician.

Views and Ruling Concerning Charitable Hospitals

(Roberts v. Ohio Valley General Hospital (W. Va.), 127 S. E. R. 318)

The Supreme Court of Appeals of West Virginia says that this was an action for damages for an alleged injury from negligent and unskilful treatment by one of the defendant's nurses while the plaintiff was a paying patient at the defendant's hospital. The defendant filed a special plea setting forth its character as a charitable institution. An objection to the plea was sustained and the plea rejected. The case was then certified to this court on the joint application of both parties to the suit, who desired a ruling on the sufficiency of the plea. The exact question involved had never been determined by this court.

Public policy demands that charitable institutions be fostered and preserved. To this end, the law should deal with them more leniently than with institutions conducted solely for private gain. No human endeavor of any magnitude is immune from mistakes. No matter how strict a rule might be enforced against institutions of this nature, mistakes in treatment would occasionally happen. Employees and servants selected with ordinary care, however, will execute the charity with but few mistakes. If no care be had in their selection, mistakes will necesarily multiply. The purpose of the founders of a charity is to help those who need assistance. They propose, not unskilful or incompetent aid, but humane and efficient treatment. The subject of an employee's negligence is harmed instead of helped by the charity. The will of the donors is thwarted instead of served when an object of their beneficence suffers from such neglect. When administered by incompetent servants, charity, instead of being a great boon to humanity, may become a menace. One who enters a hospital expects, and has a right to expect, more skilful treatment than is obtainable in the home. If such institutions be not held to reasonable care in the selection of their employees, confidence in their efficacy will be shaken. Many who need, will fear to accept hospital treatment, and those who do apply therefor will lack the faith therein that is so frequently half the battle in the contest with disease.

In order that the high purpose of the donors of a charitable hospital may be best served, that those who need aid may not hesitate to accept the charity, and to prevent as far as may be human suffering from acts of negligence and incompetence, it would seem imperative to require of those in charge reasonable care in the selection and retention of the employees. The fact that one is a paying patient does not alter the rule. Such patient is the recipient of the donors' gratuity only in a lesser degree than one who makes no payment. The hospital building, with its equipment, management, and its great possibilities for the alleviation of suffering, was provided by charity. In using the organization made possible and supported by that charity, a paying patient, to that extent, benefits by the charity.

Because of its failure to allege that the defendant used reasonable care in selecting the nurse of whose negligence the plaintiff complained, this court holds that the plea as presented did not in terms state a defense to the action, and the judgment of the lower court is therefore affirmed. As stated in the syllabus by the court, it is incumbent on a charitable hospital to use reasonable care in the selection and retention of its physicians, nurses and attendants; and for failure to do so it is liable for injuries due to their incompetence, received by its patients.

Privilege as to Physicians and Third Persons

(Southwest Metals Co. v. Gomez (U. S.), 4 Fed. R. (2d) 215)

The United States Circuit Court of Appeals, Ninth Circuit, in reversing a judgment obtained by plaintiff Gomez, says that this was an action to recover damages for personal injuries, based on the employers' liability law of Arizona. The plaintiff testified that after the accident certain physicians removed dirt from his eye. The physicians who attended him were called by the defendant company, and an inquiry was made as to the truth of that statement. The testimony of the physicians was objected to on the ground that the relation of physician and patient existed and that the testimony was incompetent. The objection was sustained. The nurse who assisted the physicians was then called as a witness, but her testimony was objected to for the like reason and the objection sustained.

If the question were an open one, much might be said against the justice and wisdom of a rule that permits a party to a suit to offer testimony tending to show that a physician removed dirt from his eye, or fragments of bone from his leg, and forbids the physician to give testimony controverting that fact; but that such is the effect of the statute of Arizona with regard to privileged communications, as construed by the supreme court of the state, does not admit of question: and that statute of the state, as construed by its highest court, is binding on this court.

The claim of privilege on behalf of the nurse presented a more difficult question. All the authorities agree that the privilege or exemption does not extend to a third person who is present and overhears the communication between the physician and the patient. Under such circumstances, some of the cases hold that both the physician and the third person may testify, while others hold that as to the physician the privilege is not waived. The plaintiff did not controvert this general rule, but contended that it has no application where the third person acts as agent of or assistant to the physician. This court has examined the cases cited in support of this contention, and many others, and finds that in every case the agent or assistant was himself a physician or surgeon. The rule excluding hospital records kept under the direction of the physician had no application here, and the same was true of cases in which the intervention of a third person was strictly necessary to enable the physician to communicate with the patient. The statute is limited by its terms to physicians and surgeons. If public policy demands that the privilege of the physician and surgeon should be extended to nurses and other attendants who are neither physicians nor surgeons, the change should be made by the legislature, not by judicial construction. The ruling excluding the testimony of the nurse was prejudicial error.

Objection to the question asked on cross-examination of a physician who testified for the plaintiff, "Do you make it a habit of appearing for plaintiffs in these personal injury cases?" was properly sustained on the ground that the question was too indefinite and called for the conclusion of the witness, if for no other reason.

Society Proceedings

COMING MEETINGS

Central States Pediatric Society, Chicago, November 6-7. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

District of Columbia, Medical Society of, Washington, D. C., Dec. 2. Dr. C. B. Conklin, 500 Medical Science Bldg., Washington, D. C., Sec'y.

Philippine Islands Medical Association, Manila, Dec. 16-19. Dr. Isabelo Concepcion, College of Medicine and Surgery, Manila, Secretary.

Porto Rico, Medical Association of, Coami, Dec. 14-15. Dr. R. M. Suarez, Box 314, Santurce, Secretary.

Radiological Society of North America, Cleveland, Dec. 7-11. Dr. Robert J. May, St. Luke's Hospital, Cleveland, Secretary.

Southern Medical Association, Dallas, Texas, November 9-12. Mr. C. P. Loranz, Empire Bldg., Birmingham, Ala., Secretary.

Southern Surgical Association, Louisville, Ky., Dec. 15-17. Dr. Hubert A. Royster, 423 LaFayette Street, Raleigh, N. C., Secretary.

Western Surgical Association, Wichita, Kan., Dec. 18-19. Dr. Harry P. Ritchie, Lowry Building, St Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days No foreign journals are available prior to 1920, nor domestic prior to 1923 Periodicals published by the American Medical Association are not available for lending, but may be supplied on order Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested)

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

74: 1-224 (Sept 1) 1925

Development of Progression and Posture in Young Opossums. O. R. Langworthy, Baltimore —p 1.
Conditioned Salivary Reflex Established by Chronic Morphin Poisoning K H. Collins and A. L Tatum, Chicago —p 14
*Effect of Abdominal Pressure on Urine Volume J. Q Griffith and H. R. Hansell, Philadelphia —p. 16
*Glyconeogenesis J Markowitz, Toronto —p 22
Depancreatized Dogs Before and After Withdrawal of Insulin I L Chaikoff, J J. R. Macleod, J. Markowitz and W. W. Simpson, Toronto —p 36
*Physiology of Liver XI Extrahepatic Formation of Bilirubin F C. Mann, C H Sheard and J. L Bollman, Rochester, Minn —p 49
*Effects of Bilateral Vagotomy on Blood Pressure C I. Reed, Chicago. —p 61.
Nutritive Values and Physiologic Effects of Different Fats and Oils F. J McClure and R H. Carr, Lafayette, Ind —p 70
*Intravascular Use of Heparin C I Reed, Chicago —p 79.
Training Heart by Systematically Regulating Respirations. P. F. Swindle, Milwaukee, Wis —p 82
Chemical Sensitiveness of Kidneys E F Adolph, Baltimore —p. 93
Relationship Between Volume and Reaction of Urine Specimens R S. Hubbard, Clifton Springs, N. Y —p 111.
*Effect of Sleep on Blood Pressure. M. A. Blankenhorn and H E Campbell, Cleveland —p 115
Conductivity in Compressed Cardiac Muscle I. Recovery of Conductivity Following Impulse Transmission in Compressed Auricular Muscle of Turtle Heart R Ashman, New Orleans —p 121.
Id II. Supernormal Phase in Conductivity in Compressed Auricular Muscle of Turtle Heart R. Ashman, New Orleans —p 140
Normal Variations of Percentage Weights of Body Organs of Albino Rat with Changing Body Weight A T. Cameron, Winnipeg, Can —p 151.
Electrogram of Ventricle S de Boer, Amsterdam, N. Y —p 158
*Contractions of Gallbladder. N. B Taylor and M J. Wilson, Toronto —p 172
*Tonus Rhythms in Bowel W C Alvarez, San Francisco —p 181
Emotional Reactions IV. Metabolic Rate C. Landis, Minneapolis —p. 188
Heat Regulation and Water Exchange X Water, Salt and Lipoid Accumulation in Serum as Preliminary to Sweating H G Barbour, M H. Dawson and I. Neuwirth, Louisville —p 204

Effect of Abdominal Pressure on Urine Volume.—Griffith and Hansell assert that diuresis analogous to that obtained in baths occurs on the application of appropriate pressure to the abdomen The evidence would seem to indicate that there is an optimum pressure for producing diuresis, different for different individuals, and that the more nearly the applied pressure approaches the optimum pressure the greater the diuresis Thus too low pressures might be ineffective, while too high pressures may even cause partial suppression It would appear that the cause of the diuresis on application of pressure should be sought in connection with increased venous pressure or other physical phenomena, rather than in greater urea excretion

Glyconeogenesis.—Markowitz' experiments, together with those quoted from the literature, demonstrate that glycogen is an obligatory, and not an optional step in the formation of blood sugar from the noncarbohydrate stores of the organism

Extraheptic Formation of Bilirubin.—The evidence presented by Mann et al would seem to be final evidence that the pigment which develops in the dehepatized animal is bilirubin and that extrahepatic formation of bile pigment is possible.

Effects of Bilateral Vagotomy on Blood Pressure.—An analysis is presented by Reed of 103 experiments in which the results of bilateral vagotomy were studied. There was no close correlation between cardiac and vasomotor responses to this operation. In experiments in which the operation was performed in the early stages of anesthesia and before any pronounced degree of shock had occurred, the predominant response was a rise in blood pressure independent of changes in heart rate, which was persistent and progressive in nearly all cases In many experiments in which a profound degree of shock had occurred the response to vagisection was a characteristic rise in arterial blood pressure, showing that the post-vagotomy depression in blood pressure does not invariably follow a condition of general shock

Intravascular Use of Heparin.—Reed asserts that heparin is valuable as an in vitro anticoagulant when it is desirable to retain all other physical and chemical properties undisturbed. Ten milligrams per kilogram of body weight is the minimum dependable dosage. Precautions for its use are mentioned.

Effect of Sleep on Blood Pressure.—The blood pressure averages of twenty-five patients for thirty-eight nights are offered by Blankenhorn and Campbell, showing the occurrence of the minimum systolic point (101 mm) at the fourth hour of sleep, a slight rise before waking and an abrupt rise after waking to a point equal to the first hour of sleep. The diastolic pressure shows a like though lesser fall. The pulse shows a curve almost similar to that of the pressure. The fall of the pressure is due mainly to the fall of pulse rate, though it is probably somewhat influenced by the peripheral relaxation.

Contractions of Gallbladder.—A method is described by Taylor and Wilson for recording contractions of the gallbladder in dogs which eliminates some defects. A marked contraction of the gallbladder on injecting 40 c.c. of a 33 per cent. magnesium sulphate solution into the duodenum was found in one dog out of eight; slight tonic contractions were seen in several others. Epinephrin intravenously caused a fall in gallbladder pressure, succeeded by a marked rise in pressure and increased amplitude of the rhythmic contractions Repeated injections abolish the initial fall, but increase the tonic effect Pilocarpin raised the tone slightly, but had no effect on rhythmic activity. Bile (3 c c.) intravenously lowered tone and depressed the rhythmic contractions Morphin and apomorphin slowed the rhythm, without affecting the amplitude. Secretin intravenously had no appreciable effect on the motor activity Ten cubic centimeters of 30 per cent. sodium chlorid intravenously temporarily increased the rhythmic contractions.

Tonus Rhythms in Bowel.—In addition to the segmenting movements and the peristaltic rushes in the bowel, Alvarez has noted slow tonus waves. In the duodenum and jejunum of the cat, this tonus rhythm can exist alone. This tonus rhythm is sometimes captured by the stomach and made to follow it for a time The tonus waves do not seem to travel along the bowel. They appear in records from the excised bowel and in records made with a balloon in the jejunum of a man. At the height of the tonus contraction, there is sometimes a marked increase in the rate of the superimposed rhythmic contractions. Mere distention of the bowel does not ordinarily produce such an increase in rate Tonus waves in one part of the digestive tract will sometimes seem to affect positively or negatively the activities of another part These waves probably have a good deal to do with starting and stopping the peristaltic rushes.

Annals of Surgery, Philadelphia

72: 321 511 (Sept) 1925

*Surgical Treatment of Habitual Criminals, Imbeciles, Perverts, Paupers, Morons, Epileptics and Degenerates A J Oschner, Chicago —p 321.
*Conception of Septicemia and Fate of Microbes in Blood Stream W. Martin, New York —p 326
*Fat Embolism Two Fatal Cases. A W. Elting and C E. Martin, Albany, N Y —p 336
*Operative Treatment of Angina Pectoris H. H. Kerr, Washington, D C —p 354
Acute Massive Collapse of Lungs; Mechanism, Relation to Foreign Bodies in Bronchi and Postoperative Complications C Jackson and W. E Lee, Philadelphia —p 356
Extraction Through Thorax of Projectiles Long Resident in Lung J J. Buchanan, Pittsburgh —p 390
*Evaluation of Preoperative and Postoperative Radiation in Treatment of Mammary Carcinoma B J Lee and R E Herendeen, New York —p 404
*Splenectomy for Purpura Hemorrhagica M. B Clopton, St. Louis.—p 413

Sequelae of Gastro-Enterostomy. D. C. Balfour, Rochester, Minn.—p. 421.
Primary Carcinoma of Small Intestine in Octogenarian. A. Primrose, Toronto, Ont.—p. 429.
Intussusception in Adults Due to Invagination of Meckel's Diverticulum: Two Cases. W. E. Lower, Cleveland.—p. 436.
Anatomy and Treatment of Reducible Oblique Inguinal Hernia. E. Eliot, Jr., New York.—p. 441.
*Broken-Down Abdominal Incisions: Method of Closure. A. M. Shipley, Baltimore.—p. 452.
Partial Resection of Kidney. E. S. Judd, Rochester, Minn.—p. 458.
Methods of Ureteral Repair and Transplantation. C. H. Mayo, Rochester, Minn.—p. 472.
*Implantation of Ovary. W. L. Estes, Bethlehem, Pa.—p. 475.
Management of Bilateral Ovarian Dermoids. F. S. Mathews, New York.—p. 483.
Treatment of Uterine Fibroids. J. B. Deaver, Philadelphia.—p. 486.
Treatment of Uterine Prolapse and Rectocele by Closure of Pouch of Douglas. J. Holmans, Boston.—p. 501.
*Hanger Method for Repair of Procidentia Uteri. G. W. Crile, Cleveland.—p. 509.

Surgical Treatment of Criminals.—The form of treatment advocated by Oschner consists in the ligation and section of the vasa deferentia.

Septicemia; Fate of Microbes in Blood Stream.—The point emphasized by Martin is that in the generalization of infection a very complex process is going on in the body. The presence of microbes in the blood is but one phase or part of this process. To speak of the blood as infected in the sense that the cellular tissue is infected in a spreading phlegmon is erroneous and misleading. To speak of the blood being sterilized by the intravenous injection of a chemical as a test tube containing a broth culture is disinfected, is equally misleading and erroneous.

Fat Embolism.—The two cases cited by Elting and Martin were both closed fractures. Fat emboli were found at necropsy in virtually all the organs; heart, lungs, liver, kidney, spleen, pancreas, gastro-intestinal tract, suprarenals, seminal vesicles, lymph nodes and brain.

Surgical Treatment of Angina Pectoris.—In eight cases in which Kerr performed the so-called American operation, the left superior sympathetic ganglion was removed. In two cases the operation was repeated on the right side and in one case, at a third seance, the middle cervical and stellate ganglia were also avulsed under local anesthesia. In five cases, complete relief from the angina was obtained, in two partial relief, and in one case no relief. In those cases with still a residue of pain in the form of a substernal ache on exertion or effort, the relief is so great that the patients are restored to subnormal activity and feel immensely repaid for their short stay in the hospital. The permanent results of superior sympathectomy are anesthetization of the area above the oblique scar, from division of the superficial branches of the cervical plexus. There is also produced an enophthalmos and contraction of the pupil on the operated side.

Value of Radiotherapy in Breast Cancer.—Lee and Herendeen are convinced that preoperative and postoperative radiation are of value as an adjunct to surgery in the treatment of carcinoma of the breast. The best results were obtained when both preoperative and postoperative radiation were employed. The end results will be largely determined by the plan of irradiation followed and the dosage employed.

Splenectomy for Purpura Hemorrhagica.—Two children have been splenectomized by Clopton, both of them over fifteen months since, one with such marked improvement that it can reasonably be called a cure; the other with marked improvement, but with occasional hemorrhages that are easily controlled. A more recent case, a woman, 34 years old, has had no reappearance of purpura or hemorrhages since her operation eight months ago.

Resuture of Abdominal Incisions.—Shipley describes a method of closure for broken down abdominal wounds in which interrupted silver wire sutures are used to effect approximation of the wound edges. The wires are tightened a little more each day until the wound edges are healthy when they are contracted and healing occurs quickly.

Implantation of Ovary.—When the oviduct is permanently obstructed Estes exsects the uterine end of the tube and implants the ovary-cut surface into this denuded spot on the uterine horn, thus bringing the ovary into direct contact with the uterine cavity. This method of implantation of ovarian stroma has resulted in pregnancy in over 10 per cent. of the cases.

Hanger Method for Repair of Procidentia Uteri.—Crile removes a wedge-shaped section of the central part of the uterus, the apex extending down to the cervix, leaving a lateral strip of uterus free of mucosa on each side, together with the attachments of the round, the broad, the anterior and the uterosacral ligaments. Bleeding is controlled and the raw surface of each side and across the cervix is covered by suturing. The entire group of organs—the bladder, the rectum, the cervix and the vagina—involved in the descensus may be raised or lowered by these two handles and it remains only to find the anchorage whereby the group may remain permanently elevated by these handles. To this end a short incision is made through the external fascia, muscle and peritoneum, parallel to the original incision but just to the left of the median line as in a Gilliam operation, this opening, however, being made just large enough to draw through it the left "handle" of the descensus complex; the right handle is brought up through the primary incision. Thus the two "strap handles" emerge well up and out of the right and left incisions with a substantial and dependable strip of abdominal wall lying between them. The two handles are crossed over this strip as if to grasp it and are sutured there, thus forming a permanent immovable opponent to further descensus.

Archives of Internal Medicine, Chicago

36: 293-446 (Sept. 15) 1925

*Action of Oils in Production of Tumors. M. T. Burrows and C. G. Johnston, St. Louis.—p. 293.
*Value of Iron in Anemia. C. S. Williamson and H. N. Ets, Chicago.—p. 333.
Vital Capacity in Citizens' Military Training Camp. S. A. White and P. F. McGuire, Washington, D. C.—p. 355.
*Effect of Phenobarbital (Luminal) on Blood Pressure in Arterial Hypertension. III. C. M. Gruber, H. H. Shackelford and A. M. Ecklund, St. Louis.—p. 366.
*Basal Metabolism as Affected by Atmospheric Conditions. W. J. McConnell and C. P. Yagloglou, Pittsburgh.—p. 382.
*Metabolism of Obesity. IV. Distribution of Energy Production After Food. C. C. Wang and S. Strouse, Chicago.—p. 397.
Diseases of Liver. III. Comparative Study of Certain Tests for Hepatic Function in Patients with Obstructive Jaundice. C. H. Greene, C. S. McVicar, L. G. Rowntree and W. Walters, Rochester, Minn.—p. 418.
*Auricles in Cases of Auricular Fibrillation. C. Frothingham, Boston.—p. 437.

Action of Oils in Production of Tumors.—Burrows and Johnston state that cancer is an independent growth of body cells. It may be induced by any one of a number of conditions and substances. Once established, it proceeds independently of these causative agents. An active independent growth of body cells depends on a crowding of the cells together in a stagnant area or an area having a relatively poor blood supply. Cancer has this kind of an organization. It has been found that such an organization can reproduce itself through the fact that it destroys through its growth the normal tissue and blood vessels about it. The action of drops of corn oil and coal tar on the tissue has been investigated. It has been found that they act to build a dense, stagnant mass of cells by drawing the tissue cells to them and away from their intercellular substances and blood vessels. The bacteria that induce cancer act in the same manner to build a densely cellular stagnant mass of cells, but by a different means. They induce such a mass of cells to form by stimulating the cells of the tissue to proliferate without forming to any extent intercellular substances and blood vessels. These factors of stagnation and cell crowding become important for growth because the growth of body cells depends on a certain concentration of a primary product of the oxidation of the cells, the archusia. This substance is soluble in blood. The cells cannot retain it in quantity. Its concentration is at all times under the control of the environment. Function is likewise determined by the environment. Body cells can be made to grow not only through the accumulation of their own archusia, but by adding archusia from outside sources. Function is something that maintains only in an environment that inhibits an independent growth.

Value of Iron in Anemia.—Williamson and Ets have found that inorganic iron, whether given by mouth, subcutaneously or intravenously, is absorbed and may be found especially in the liver and spleen, but is not converted into hemoglobin. Animals made anemic by one or several large bleedings do not recover any more rapidly when inorganic iron is given in any of these ways. The efficiency of food iron is very pronounced, and animals on a diet containing food iron only recover very rapidly from hemorrhages that remove an amount of iron greater than exists in the entire body outside the blood. In the light of the foregoing experiments, the administration of inorganic iron has no therapeutic value in anemia.

Effect of Phenobarbital on Blood Pressure in Hypertension.—Phenobarbital decreased the arterial blood pressure in 85 per cent. of cases of hypertension in which it was used by Gruber, Shackelford and Ecklund. It appears to become less and less effective in most instances on prolonged administration. It has the same effect on both ambulatory and hospital patients. In moderate doses it has probably no harmful effect on the kidney tissues and on the phenolsulphonephthalein excretion. Immediately with the fall in blood pressure the phenolsulphonephthalein excretion is increased, but later, in some instances, its elimination is diminished. The elimination again returns to its original level after withdrawal of the drug. It produces marked toxic symptoms in large doses and therefore should not be prescribed indiscriminately.

Effect of Atmosphere on Basal Metabolism.—The results of the experiments made by McConnell and Yaglogou lead them to the following conclusions: The rates at which oxygen is consumed and carbon dioxid is produced increase with exposure to either high or low temperatures. There is a zone of minimum metabolic rate between 75 and 83 degrees effective temperature within which basal metabolism should be measured. The metabolic rate increases rapidly when the temperature of the environment is higher than that of the body. Body temperature and pulse rate correlate fairly well with the rate of basal metabolism.

Metabolism of Obesity.—The energy derived from the various nutrients by obese, normal and thin people after the ingestion of meals high in protein, carbohydrate and fat, respectively, was made the subject of the study by Wang and Strouse. There were twenty-six tests on obese subjects, twenty-one on thin subjects and twelve on normals. After the ingestion of protein, obese persons have a tendency to derive their energy from carbohydrate, whereas thin and normal persons use less carbohydrate than during starvation. Calories derived from fat decrease in the obese after the meal, but show little change in the thin and normals. The two latter groups, however, show a decided rise in calories derived from protein after the meal, but the protein consumption is little affected in the obese. This confirms previous findings that there is very little specific dynamic action of protein in obese persons. All subjects derive more energy from carbohydrate after the ingestion of a high carbohydrate meal, and less from fat. Calories derived from protein after this meal vary little, however, in any group from the starvation figures. After the high fat meal all groups show an increase in energy derived from fat. The obese continue to use carbohydrate in greater amounts than the two other groups. The protein consumption shows very little change, especially in the obese and normals. There is no relation between the pulse rate and energy production computed on the basis of heat produced per square meter of body surface. The fact that the obese subjects derive less energy from fat than either the thin or the normals after meals indicates a reason for excessive fat storage.

Auricles in Auricular Fibrillation.—It was evident to Frothingham from a study of cases that there is no typical lesion in the auricles that could be looked on as the cause of auricular fibrillation. A slight degenerative lesion was found in the muscle fibers of the auricles much more frequently with auricular fibrillation than in regularly beating hearts of the same age. It is interesting to speculate whether this lesion was the result of the irregularity of rhythm or a factor in its production, by causing some defect in the conduction of impulses or in the ability of the muscle to respond to the impulses.

Boston Medical and Surgical Journal

193: 617-658 (Oct. 1) 1925

Uremia in Acute Glomerular Nephritis. K. D. Blackfan and B. Hamilton, Boston.—p. 617.
Study of 500 Admissions to Fourth Medical Service, Boston City Hospital. F. W. Peabody, Boston.—p. 629.
Department of Social Work at Boston City Hospital. G. L. Farmer and A. L. Estabrook, Boston.—p. 630.

Uremia in Acute Glomerular Nephritis.—The uremic symptoms in acute glomerular nephritis in children are discussed by Blackfan and Hamilton on the basis of observations made on eleven patients. The form of uremia seen in acute glomerular nephritis in children is characterized by headache, vomiting, visual disturbances, delirium or coma and convulsions. It is always preceded by a steady rise in arterial tension and by visible but not necessarily marked edema. A steady increase of arterial tension is the most reliable indication of approaching uremia. Intracranial tension resulting from edema of the brain is probably the causative factor of the symptoms in this form of uremia. This is suggested by finding an edematous brain at necropsy and the relief afforded by treatment favoring a decrease of cerebral edema. Arterial hypertension is probably the result of increased intracranial pressure. The intravenous injection of 1 per cent. solution of magnesium sulphate together with the administration of large doses of the salt by mouth and by rectum has been found to be effective in the treatment of this form of uremia. The intravenous injection should be repeated if necessary at twelve to twenty-four hour intervals until the blood pressure remains at a low level and the cerebral symptoms have subsided. Intravenous treatment is not effective during the medullary cone phase or in the terminal stages. Lumbar puncture should be used guardedly in order to avoid incarceration of an edematous brain in the foramen magnum. The term uremia is misleading as the symptoms are not dependent on the retention of nitrogenous end products. It is suggested that the characteristic symptoms with arterial hypertension be referred to as the cerebral symptoms of acute glomerular nephritis.

Canadian Medical Association Journal, Montreal

15: 883-988 (Sept.) 1925

Surgical Treatment of Gastric and Duodenal Ulcer. H. W. Carson, London, Eng.—p. 883.
Rheumatoid Arthritis. H. Rolleston, London, Eng.—p. 899.
Tumors of Large Bowel. A. Primrose, Toronto.—p. 897.
Primary Papillary Epithelioma of Ureter. H. D. Morse, Rochester, Minn.—p. 902.
*New Technic in Application of Thiersch Skin Grafts. D. McLellan, Vancouver, B. C.—p. 908.
*Calcium and Potassium Chlorids in Treatment of Arterial Hypertension. W. L. T. Addison and H. G. Clark, Toronto.—p. 913.
Peripheral Nerve Injuries. F. H. Mackay, Montreal.—p. 915.
Biliary Disease as Seen in General Practice. F. N. G. Starr, Toronto.—p. 922.
Bladder Neoplasms. D. W. MacKenzie, Montreal.—p. 926.
Infectious Arthritides. A. M. Forbes and L. Rhea, Montreal.—p. 931.
Rectal Anesthesia in Obstetrics. J. D. Graham, Toronto.—p. 935.
Cancer of Larynx; Thirty-One Cases. A. A. Campbell, Toronto.—p. 939.
Deficiency Diseases of Children. F. F. Tisdall, Toronto.—p. 904.
Arrest of Syphilitic Optic Atrophy by Cisternal Injection of Mercury. N. Viner and S. O. McMurty, Montreal.—p. 910.
Maternal Mortality. H. MacMurchy, Ottawa.—p. 941.
*Intracranial Dermoid Cyst. J. M. McEachern, Toronto.—p. 942.
Spontaneous Pneumoperitoneum. M. R. MacCharles, Winnipeg.—p. 943.
Infected Thrombus. J. M. Vaughan, Montreal.—p. 945.

Application of Thiersch Skin Grafts.—The technic used by McLellan in the case of a small boy with an extensive burn of the anterior medial and lateral aspects of the thigh, was as follows: A strip of zinc oxid adhesive plaster, 1 inch wide and long enough to go completely across and adhere firmly to the skin on both sides of the raw area, was laid, with adhesive side up, on a sterile towel. Six or eight thicknesses of gause, 1 inch wide and long enough to go completely across the wound, were cut and applied lengthwise to the center of the adhesive plaster strip. With a sterile applicator, a thin layer of sterile petrolatum was applied to the surface of the gauze. Thiersch grafts were taken in the usual way and applied, raw side up, to the greasy surface of the gauze. Taking the adhesive by both ends, the graft was thus applied to the raw area, the adhesive being stuck firmly to the good skin on each side of the wound. This was left in position for eight days, at the end of which time the adhesive plaster was clipped at the junction of the raw surface and the good skin. Having turned the adhesive and gauze strips back carefully, the graft was found to be adherent to the raw surface.

Calcium and Potassium Chlorid in Treatment of Arterial Hypertension.—Addison and Clark assert that calcium and potassium chlorids will produce a decided fall in blood pressure in a large parcentage of cases of hypertension with a coincident improvement of the patient's symptoms. Edema will improve and disappear under their action. The treatment must be persisted in for three or four weeks to get results. From 90 to 180 grains should be given daily. The only serious objection is the possibility of producing symptoms of an inorganic acidosis.

Intracranial Dermoid Cyst.—A congenital inclusion dermoid of the posterior fossa of the cranium is reported by McEachern. The cyst contents consisted of a soft material containing many hairs but no other organized structures. This anomaly was associated with a double ureter.

Journal of Laboratory and Clinical Medicine, St. Louis

10: 965-1068 (Sept.) 1925

*Pulpless Tooth from Bacteriologic and Experimental Standpoint. R. L. Haden, Kansas City, Mo.—p. 965.
*Parathyroid Glands and Their Iodin Content. A. M. Hjort, O. M. Gruhzit and A. G. Flieger, Detroit.—p. 979.
Narcotic and Toxic Potency of Aliphatic Alcohols on Rabbits. J. C. Munch and E. W. Schwartze, Washington, D. C.—p. 985.
*Tissue Autolysis in Vivo. III. Spleen. E. C. Mason, E. C. Davidson and C. W. Matthew, Detroit.—p. 997.
Effect of Potassium Oxaline on Blood Sugar Determinations. H. J. John, Cleveland.—p. 1000.
Possible Source of Error in Use of Russell's Double Sugar Medium. W. P. Belk and M. Duff, Bryn Mawr, Pa.—p. 1005.
*Laboratory Diagnosis in Throat Infections. II. Direct Smear. C. C. Young and M. Crooks, Lansing, Mich.—p. 1007.
Contributing Cause of Turbidity of Nesslerized Solutions in Determination of Urea in Whole Blood. F. B. Cooper, Trudeau, N. Y.—p. 1012.
*Kahn Reaction for Syphilis. II. Specificity of Test. H. L. Keim, Ann Arbor, Mich., and R. L. Kahn, Lansing, Mich.—p. 1013.
*Hemoglobin and Iron in Blood. G. E. Sackett, Kansas City, Mo.—p. 1018.
Comparative Heat Resistance of Serums in Kahn and Wassermann Tests. P. L. Kendrick, Lansing, Mich.—p. 1020.
Effect of Some Guanidine Derivatives and Other Related Substances on Blood Sugar of Normal Rabbits. H. E. Dubin and H. B. Corbitt, New York.—p. 1023.
Value of Early Wassermann Examinations in Diagnosis of Venereal Lesions. R. G. Owen and H. E. Cope, Detroit.—p. 1026.
Hematrocrit Method. C. M. Van Allen, New York.—p. 1027.
Apparatus for Determination of Low Concentrations of Chlorin in Chlorin-Air Mixtures. J. H. Yoe, Charlottesville, Va.—p. 1041.
Aids to Urinalysis in Large Hospital. C. Pons and E. B. Krumbhaar, Philadelphia.—p. 1046.
Device for Saving Supernatant Fluids. F. A. Wiggers, Toledo, Ohio.—p. 1049.

Pulpless Teeth.—Haden asserts that a very high percentage of teeth that are negative in the roentgenogram harbor infection. A fairly large percentage of teeth which were positive in the roentgenogram did not harbor any infection or sufficient infection to be a factor in systemic disease at the time the culture was taken. In such cases, the infection has probably run its course and become bacteria free, just as happens in infections elsewhere in the body. The periapical tissues of a certain percentage of pulpless teeth, either positive or negative in the roentgenogram, are sterile when cultured in glucose brain broth. This does not prove that such are really sterile, since some other method of culture might reveal organisms. The findings suggest, however, that a pulpless tooth is not necessarily infected. The bacteria concerned in chronic foci are quite pathogenic, as judged by their ability to produce lesions in animals on intravenous injection. In selected cases, one can prove an unmistakable tendency of bacteria from chronic foci to localize in certain parts of the body. These cases afford valuable experimental proof of a causal relation of a chronic focus to systemic disease.

Iodin Content of Parathyroids.—Parathyroid preparations made from the external bovine glands by Hjort, Gruhzit and Flieger were not contaminated with thyroid tissue. The iodin content of the parathyroids is of no greater magnitude than that of the ovaries, pituitary and thymus. The iodin found in these glands probably represents the normal distribution of that substance throughout the body tissues.

Autolysis of Spleen in Vivo.—Autolysis of the spleen free within the abdominal cavity has been accompanied by death in 50 per cent. of the animals studied by Mason, Davidson and Matthew. Death from spleen autolysis has not followed so soon after operation as death from liver autolysis, the earliest death being thirty-six hours after sectioning the spleen. It is suggested that the spleen either does not undergo as rapid autolysis as the liver tissue or that the toxic material liberated is not so potent. Apparently the blood chemistry is but little altered in the animals which survive sectioning of the spleen, while those dying following the operation show some changes. The analysis of the abdominal fluid present at death due to spleen autolysis shows the nonprotein nitrogen constituents are essentially the same as in those cases of death due to liver autolysis.

Laboratory Diagnosis of Throat Infections.—A report of the findings on direct examination of throat swabs is presented by Young and Crooks. Smears made from swabs mailed to the laboratory showed diphtheria-like bacilli in about 60 per cent. of the positive cultures. The organisms of Vincent were found in many cases which were clinically confused with diphtheria. Smears from both the swabs and cultures were stained with Loeffler's alkaline methylene blue and a diagnosis made on staining reaction, morphology and arrangement.

Kahn Test for Syphilis.—A series of 2,500 cases, clinically free from syphilis, were studied by Keim and Kahn with the Kahn precipitation test. Negative reactions were obtained in 2,493 cases; 1 plus reactions were obtained in four cases; 2 plus reactions in two cases; and a 3 plus reaction in one case. These results indicate that the Kahn test possesses a high degree of specificity for syphilis.

Hemoglobin and Iron in Blood.—Sackett attempted to compare the percentage of hemoglobin found by Newcomer's method with the grams of hemoglobin present, and also to help establish a normal hemoglobin standard expressed in grams per hundred cubic centimeters corresponding to a five million red cell count. One hundred per cent. hemoglobin by Newcomer's method represents 16.4 gm. of hemoglobin per hundred cubic centimeters of whole blood. The normal standard corresponding to a five million red cell count is 16.4 gm. hemogobin per hundred cubic centimeters of whole blood.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

26: 83-186 (Sept.) 1925

*Effect of Ephedrine on Experimental Shock and Hemorrhage. K. K. Chen, Peking, China.—p. 83.
Toxic Effect of Certain Alcoholic Beverages for the Kidney of Normal and Naturally Nephropathic Dogs. W. DeB. MacNider, Chapel Hills, N. C.—p. 97.
Studies of *Intoxication.* VII. *Effect of Caffein.* B. M. Davidson, Aberdeen, Scotland.—p. 105.
*Experimental Study of Certain Benzyl Compounds; Importance of Substitution in Benzyl Nucleus and Significance of the Side Chains. H. H. Jensen, Minneapolis.—p. 123.
*Action of Spartein Sulphate on Mammalian Heart. J. H. Crawford, Edinburgh.—p. 171.

Ephedrin in Shock.—Chen states that ephedrin raises blood pressure in hemorrhages and in experimental shock induced by histamin, peptone, anaphylaxis or surgical manipulation. The rise in blood pressure is permanent under favorable conditions and this effect of the drug is due to increased cardiac output and not to arterial constriction. Ephedrin fails to act when the heart beat becomes impaired, or respiration ceases, or the degree of shock is too extensive, or when hemorrhage exceeds 25 per cent. It has, however, no harmful effects.

Study of Benzyl Compounds.—Jensen's review and experimental studies of benzyl compounds suggest the following conclusions as to the importance of the various chemical groups in the benzyl nucleus: Introduction of a carbinol group decreases the toxicity and physiologic activity of phenol and aldehyd benzyl compounds. The position of the carbinol group in the molecule appears to be of some importance for the local anesthetic properties of the compound. The carbinol group seems to be the chief anesthesiophore group in benzyl compounds. The introduction of a carbinol group reduces the anthelmintic action of phenolic compounds. Bactericidal properties of benzyl compounds carry with the side chain groups in the following order, beginning with the most effective: phenol group, aldehyd group and the carbinol group. Anthelmintic properties of benzyl compounds are dependent on the side chain groups for their activity similarly to the bactericidal properties. Specific physiologic actions cannot be ascribed only to a definite chemical group. There is some suggestion that the physiologic activity of benzyl compounds depends on the number of hydrogen atoms in the benzyl nucleus. Pharmacologic actions seem to correspond to the most active chemical group in the molecule, i. e., the aldehyd action predominates in the alcohols of salicylaldehyd and *p*-oxybenzaldehyd.

Spartein Sulphate in Auricular Fibrillation.—Crawford found that spartein sulphate in appropriate dosage can cause cessation of auricular fibrillation induced by faradic stimulation of the dog's auricle. It does this probably by virtue of its depressant action on heart muscle. The power of stopping fibrillation of the auricle is not peculiar to one individual drug or group of drugs, but may be common to those drugs which depress the activity of cardiac muscle.

Laryngoscope, St. Louis

35: 657-734 (Sept.) 1925

Vestibular Tests in Intracranial Conditions. L. Fisher, Philadelphia.—p. 657.
Herpes Zoster Oticus: Involvement of Fifth, Seventh, Eighth and Ninth Cranial Nerves; Complete Vestibular Examination. F. L. Dennis, Colorado Springs.—p. 665.
Roentgen-Ray Examination in Mastoiditis. S. G. Dabney, Louisville, Ky.—p. 675.
Chronic Purulent Otitis Media with Several Intracranial Complications. B. H. Shuster, Philadelphia.—p. 680.
Optic Neuropathy and Spheno-Ethmoid Disease. C. M. Miller, Richmond, Va.—p. 687.
Catarrh or Sinusitis. N. P. Stauffer, Philadelphia.—p. 697.
Membranous Pharyngitis, Laryngitis and Tracheitis Following Roentgen-Ray Treatment of Cervical Adenitis. M. C. Myerson, New York.—p. 703.
Local Anesthesia in Tonsillectomy. W. H. Barnes, Philadelphia.—p. 706.
Infected Tonsils as Cause of Thyrotoxicosis. H. T. Bailey, Phoenix, Ariz.—p. 711.
Bronchoscopic Syringe. R. M. Lukens, Philadelphia.—p. 716.
Bronchoscopic Specimen Collector. R. M. Lukens, Philadelphia.—p. 717.

Medical Journal and Record, New York

72: 369-436 (Oct. 7) 1925

Diagnostic Value of Roentgen-Ray Examination of Gallbladder After Intravenous Injection of Tetraiodophenolphthalein. W. C. Barker, Philadelphia.—p. 369.
Roentgen-Ray Diagnosis of Duodenal Ulcer. V. Knapp, New York.—p. 373.
Rôle of General Practitioner in Modern Mental Hygiene Movement. I. J. Sands, New York.—p. 376.
Implants with Cannula in Treatment of Atrophic Rhinitis. C. C. Miller, Chicago.—p. 381.
Rhinitis. J. Daley, New York.—p. 383.
Droop Shoulders in Adults; Twelve Cases. J. C. Wilson, Hartford, Conn.—p. 386.
Artificial Leukocytes. B. Ferguson, Rotterdam, Holland.—p. 388.
Influence of Physical Disorders on Behavior. I. S. Wile, New York.—p. 391.
American Stomatological Movement in International Activities. A. J. Asgis, New York.—p. 393.
Surgeon's Heritage and Outlook. H. A. Royster, Raleigh, N. C.—p. 395.
Extrapleural Thoracoplasty in Pulmonary Tuberculosis; Sixty Cases. W. H. Thearle, Denver.—p. 399.
Congenital Cleft Lip. T. F. Mullen, Pocatello, Idaho.—p. 402.
Surgical Treatment of Echinococcosis. H. W. Mills, San Bernardino, Calif.—p. 407.
Oscillogram. C. Finck, Vittel, France.—p. 411.
How to Dry and Clean Hypodermic Needles. W. M. Brunet, Brooklyn.—p. 414.
Rectal Irrigations in Treatment of Prostatitis. B. Rose, New York.—p. 414.
Haller and Some Bygone Observations in Pathology. D. Power, London.—p. 415.

Oklahoma State Medical Association Journal, Muskogee

18: 203-228 (Sept.) 1925

Surgical Treatment of Puerperal Eclampsia. E. B. Dunlap, Lawton.—p. 203.
Diphtheria; Advantages of Intravenous Administration of Antitoxin. J. A. Haynie, Durant.—p. 205.
Pernicious Vomiting. E. P. Allen, Oklahoma City.—p. 209.
Rectal Examination in Labor. W. A. Dean, Tulsa.—p. 211.

Philippine Islands Medical Association Journal, Manila

5: 211-250 (Aug.) 1925

Consolidation of Health Agencies in Philippine Islands. P. Laygo.—p. 211.
Potency of Different Kinds of Vaccine Virus Used in Philippines. L. L. Rizal and P. Joven.—p. 214.
Tuberculosis Problem in Philippines. J. S. Fernando.—p. 226.

South Carolina Medical Association Journal, Greenville

21: 207-215 (Sept.) 1925

Darkfield Examinations; Public Health Measure. F. M. Routh, Columbia.—p. 207.
Benign Giant Cell Bone Tumors. J. R. Rhame and A. R. Taft, Charleston.—p. 209.
Puerperal Infection. L. A. Wilson, Charleston.—p. 215.

Southern Medical Journal, Birmingham, Ala.

18: 635-706 (Sept.) 1925

*Aphasias of Childhood: Congenital Word-Blindness and Deafness as Causes of Mental Retardation and Deviation. E. B. McCready, Pittsburgh.—p. 635.
*Use of Oxygen by Body in Health and Disease. G. C. Robinson, Nashville, Tenn.—p. 646.
*Agglutination of Proteus Group of Bacilli by Human Serums. H. M. Weeter and L. J. Motyca, Louisville.—p. 650.
*Basophilic Leukocytosis in Experimental Syphilis of Rabbit. G. S. Graham, Birmingham, Ala., and W. K. Grigg, Albany, N. Y.—p. 653.
Gastric Analysis as Function Test. F. D. Gorham, St. Louis, Mo.—p. 661.
Food Diary. T. W. Murrell, Richmond, Va.—p. 664.
*Hookworm Reinfestation in Sanitated and Unsanitated Areas. R. B. Hill, San Juan, P. R.—p. 665.
Hookworm Infestation in Jones County, Mississippi, 1924. H. H. Howard, West Indies.—p. 668.
*New Use of Fluoroscope in Litholapaxy. A. E. Goldstein, Baltimore.—p. 673.
Traumatic Rupture of Urinary Bladder; Two Cases. C. G. Hoffman, Louisville, Ky.—p. 680.
*Perpendicular Incision as Uniform Approach in Both Inguinal and Femoral Herniorrhaphy. A. B. Carney, Fort Smith, Ark.—p. 685.
Stricture of Gallbladder; Case. C. F. Horine, Baltimore.—p. 685.
Paranasal Sinus as Focus of Infection in Children. E. C. Mitchell, Memphis.—p. 686.
Laryngeal Diphtheria; Three Cases. V. K. Hart, Statesville, N. C.—p. 693.
Method of Promoting Students and Effect on Student Body. Stuart Graves, Louisville, Ky.—p. 696.

Aphasias of Childhood.—McCready urges that knowledge of the occurrence, prevalence and importance of aphasic conditions in children should prevail more extensively among those coming in contact with children during their early school years in order that these cases may be differentiated from the actually defective in intelligence and that the proper remedial measures may be applied. Isolated defects and disabilities of varying degree in the zone of language are a frequent cause of interference with the educational progress of the individual and of undesirable affective states leading to serious temperamental, character and behavior difficulties. In some instances the defect may be so extreme in degree and in its results as to lead to the conviction that the individual is markedly defective in general intelligence unless a careful analysis is made.

Use of Oxygen by Body.—Robinson states that the administration of oxygen is of no avail in congenital heart disease, nor is it indicated by cyanosis of cardiac origin when the lungs are comparatively clear. The chronic cyanosis of emphysema can also only be temporarily relieved by oxygen. It is in the acute failure of the lungs to furnish the blood with an adequate supply of oxygen in which oxygen administration is especially called for. The presence of anemia or of heart failure emphasizes the importance of adequate ventilation of the blood, and it is the combination of acute pulmonary failure that takes place in pneumonia and pulmonary embolism, together with inadequate ability for compensation by the heart and blood that call especially for the therapeutic use of oxygen. Oxygen may also be of service when heart failure occurs in patients with chronic emphysema. Robinson emphasizes that it is not the spasmodic use of oxygen that is of value. The gas should be administered over hours or days, and when properly arranged, need not interrupt sleep. Its rational use should be encouraged, as it tends to combat one of the fundamental causes of death, and when properly administered in suitable cases, it may relieve distressing symptoms.

Blood Serum Agglutination of Proteus Bacilli.—The study by Weeter and Motyca showed that human serums from the patients with no known history of proteus infections agglutinated *Proteus X* 19 both early and completely in dilutions which have been described by previous workers as indicative of typhus fever in the early stages The highest dilution recorded giving positive agglutination with normal serum was 1 : 200. Proteus bacilli were isolated from six of ten specimens of stools and three of ten specimens of urine from seventeen different patients whose serums agglutinated *Proteus X* 19 in higher dilutions. These differed from *Proteus X* 19 in gelatin liquefaction and in their behavior toward *Proteus X* 19 immune serum A culture of *Proteus vulgaris* and one of *Proteus mirabilis* were not agglutinated so readily or in such high dilutions by certain of the foregoing serums as was *Proteus X* 19.

Basophilic Leukocytosis in Experimental Syphilis.—Unusual degrees of total and relative basophilic leukocytosis were observed by Graham and Grigg during the course of a study of experimental syphilis in the rabbit The basophils reached levels of 25 to 35, and, in one instance, 39 per cent. of the total leukocytes. Explanation for such basophilic leukocytosis is not complete on the basis of the work reported. The most constant factor in its production appeared to be the presence of active syphilitic infection. The reaction is interpreted as the result of degenerative changes in the hematopoietic tissues.

Hookworm Reinfestation.—Two areas in different parts of Porto Rico were treated for hookworm disease, and a year later were resurveyed. The first area, situated in an untreated, unsanitated section of the island, was treated without preliminary or subsequent sanitation of either the area itself or the surrounding territory. In the second area, latrines were constructed at all houses of it and the surrounding territory some time before treatment. Treatment also included the territory affecting the area In the first area the intensity of infestation was reduced approximately 84 per cent. while it was reduced 97 per cent in the second area. Resurvey one year later showed reinfestation universal in the first area, with the intensity half that of the previous year. In the second area almost half the inhabitants harbored hookworms, but the intensity was only 12 per cent that of the previous year The conditions causing this difference in degree of reinfestation are discussed by Hill.

Use of Fluoroscope in Litholapaxy.—Goldstein combines litholapaxy with fluoroscopy in an air medium. The method has been reported previously, but some changes in technic and the operation of additional cases are detailed in this paper.

Incision for Femoral and Inguinal Herniorrhaphy.—The incision advocated by Carney is from 3 to 5 inches in length and about 2½ inches from the midline of the body. The upper end of the incision is on a line with or slightly below the level of the anterior superior iliac spines; and the lower end crosses Poupart's ligament at the junction of the middle and lower third of the ligament This gives a free exposure of the conjoined tendon and external oblique fibers By slightly undermining the lower border of the inner flap, the spermatic cord can be picked up By undermining the outer flap the fibers of the exterior oblique can be exposed to any desired extent. The incision is such that Poupart's ligament is exposed without undue traction and the necessary repair is completed as easily as in the customary incision. Using the same incision, with Poupart's ligament readily exposed, it is an easy matter to do an inner repair for femoral hernia

Southwestern Medicine, Phoenix, Ariz.

11: 335-359 (Sept) 1925

Cancer; Value of Radiation in Malignancies of Breast and Uterus J. W. Cathcart, El Paso, Texas—p. 335.
Municipal Milk Control. J. R Scott, Albuquerque, N. M—p 340
Blood Matching for Transfusion. L Yater, Cleburne, Texas—p 345.
Chronic Appendicitis. H Snure, Los Angeles—p. 347.
Tack in Lung Six Years Removed by Bronchoscopy. W. E. Vandevere, El Paso, Texas—p 349
Pemphigus Vegetans A M. Washburn, Gamerco, N. M—p 350
Congenital Valve Formation in Posterior Urethra W. G Schultz, Tucson, Ariz—p 352
Therapeutic Action of Anilin Dyes, Especially in Infectious Diseases P Gallagher, El Paso, Texas—p. 355
Draining Abdominal Wounds R A Hernandez, Tucson, Ariz—p 359.

Texas State Journal of Medicine, Fort Worth

21: 275-334 (Sept) 1925

*Mild Typhus (Brill's Disease) in Lower Rio Grande Valley K Maxcy, Washington, D. C—p 282
Ultraviolet Light: Case Showing Photosensitization. C. F. Lehman, San Antonio—p 286.
Nonmalignant Uterine Neoplasms; Radium Treatment O. L. Norsworthy, Houston—p 289.
Gynecologic Problems E Dunlap, Dallas—p 292.
Treatment of Functional Dysmenorrhea C. V Ezell, Cleburne—p 296
Experiences with Mercurochrome. L K Patton, Amarillo—p 302
Intestinal Anastomosis by Rapid Suture Clamp A. C Scott, Jr, Temple.—p. 303.
Cause and Prevention of Postoperative Gas Pains S. P. Cunningham, San Antonio—p 306
Differential Diagnosis of Chronic Pulmonary Tuberculosis A. E Greer, Houston—p 308
Congenital Hypertrophic Pyloric Stenosis E. E. Francis, Memphis, Tenn—p 312
Cases of Uveitis, Etiology F H. Newton, Dallas—p 315
Choroiditis Resulting from Diseased Ethmoids and Sphenoids E H. Vaughn, Tyler—p 318

Mild Typhus in Rio Grande Valley.—Mild typhus (Brill's disease)—perhaps a permanently attenuated strain—is endemic in the lower Rio Grande Valley and has been there for some years, occurring sporadically, not attaining a very wide spread, and largely passing unrecognized under the name of paratyphoid fever, Rio Grande fever, etc. Maxcy regards it as not unlikely that *Pediculus humanus* var. *capitis* may be the vector responsible for the transmission of these cases.

Virginia Medical Monthly, Richmond

52: 337 404 (Sept) 1925

Treatment of Epithelioma of Face and Eyelid C. A. Simpson, Washington, D. C—p 337.
Case of Situs Transversus L T. Royster, University.—p 340
Vaginal Anus, Case; Operation, Cure H. W Cave, New York—p 342.
Hysterectomy C. R Ronins, Richmond—p. 347.
Dental Sepsis; Crown and Bridge Work. C. P Jones, Newport News—p. 350
Some Solved and Unsolved Problems of Internal Medicine A G Brown, Jr, Richmond—p 352
Intraperitoneal Transfusion; Two Cases C. E. Conrad, Harrisonburg—p 360.
Early Surgical Intervention in Prostatic Hypertrophy. W. C. Stirling. Washington, D. C—p 362.
Sciatica Treated by Epidural Injection. W B Marbury, Washington, D C—p 366
Surgery of Gallbladder and Ducts L D Keyser, Roanoke—p. 369.
Sinusitis in Children H R Etheridge, Norfolk.—p 373
Fractures About Elbow Joints J. L Wright, Harrisonburg—p 374
Cancer Plus Suggestions Based on Suggestive Experiment S Harnsberger, Warrenton—p 375
Surgical Relief of Certain Painful Conditions H H. Kerr, Washington, D C.—p 378
Rôle of Nutrition in Tuberculosis Prevention A D. Randolph, Richmond—p 381.
Analysis of Eighty-Four Deliveries H. Neifield, Brooklyn—p 384.

West Virginia Medical Journal, Huntington

21: 449 504 (Sept.) 1925

Some Transatlantic Observations F. L Hupp—p 449.
Diagnosis and Treatment of Ureteral Stricture W. S Robertson, Charleston—p 453
Pre Operative and Post Operative Care of Cases in Abdominal and Pelvic Surgery. C R Ogden, Clarksburg—p 458.
Surgical Drainage of the Abdomen B S. Brake, Clarksburg—p 466
Indications and Technic for Removal of Excessive Subcutaneous Abdominal Fat A P. Heineck, Chicago—p 475
Diagnosis and Treatment of Common Scalp Diseases L G Beinhauer, Pittsburgh—p 480
Papilloma of Bladder, Two Cases. C F Fisher, Richwood—p 487.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

37: 347-400 (Sept.) 1925

Lymphadenoma with Erythrodermia. J. M. H. MacLeod.—p. 347.
Aleukemic Leukemia with Multiple Skin Tumors. J. A. Drake.—p. 354.
*Abnormalities of Blood Sugar Content in Eczema. H. Haldin-Davis and L. Wills.—p. 364.

Blood Sugar in Eczema.—A study of twenty cases of eczema by Haldin-Davis and Wills has shown that cases of eczema in patients who are not suffering from diabetes are often (apparently in about 66 per cent. of the total number) associated with some abnormality of the blood sugar level. This abnormality may consist either (1) in an abnormally high blood sugar content during starvation, (2) in the appearance of abnormally high amounts of sugar in the blood soon after the ingestion of glucose; and moreover, these high amounts may either disappear quickly or be slow in departure. These abnormalities in the blood sugar are not associated with any particular type of eczema. Blood sugar abnormalities seem more likely to be found when the eczema is widespread and there is a good deal of edema of the skin, but this is not an invariable rule by any means. Furthermore, the dietetic treatment of eczema in patients who are not prone to obvious excesses in one direction or another is unsatisfactory.

British Medical Journal, London

2: 499-546 (Sept. 19) 1925

Therapeutic Value of Light. I. W. E. Dixon.—p. 499.
Id. II. Clinical Aspect. C. E. M. Jones.—p. 500.
Id. III. Phototherapy in Dermatology. G. H. Lancashire.—p. 502.
Uses of Posture for Bronchial Drainage. N. Neild.—p. 504.
Ocular Pain. A. F. Fergus.—p. 506.
Treatment of Ocular Syphilis. R. L. Rea.—p. 509.
Conservative Treatment of Glaucoma. J. Burdon-Cooper.—p. 510.
Some Things I Do Not Know. A. S. Percival.—p. 513.
Narcotic Effects of Two Hyocins (Scopolamins). J. C. Moir.—p. 514.
Ectopic Kidney Containing Massive Calculi. H. P. W. White.—p. 516.
Simple Method of Defibrinated Blood Transfusion. E. F. Skinner.—p. 516.
Periodic Swelling of Salivary Glands. F. W. Burton-Fanning,—p. 517.
Calculus in Testes. G. R. Tambe.—p. 518.
Removal of Parotid Tumor Without Ligature. G. M. Chapell.—p. 518.
Rectal Etherization in Suitable Cases. C. L. G. Chapman and D. McLellan.—p. 518.
*Ectopic Gestation. G. B. Oliva.—p. 518.
*Acute Thyroidism Following Ligation. F. W. Gifford Nash.—p. 519.

Double Ectopic Gestation.—In the case reported by Oliva an ovarian gestation about 26 weeks old was found on the right side, and a tubal gestation about 8 weeks old on the left. The woman complained of a tumor, abdominal discomfort, loss of weight, occasional pyrexial chills, constipation and amenorrhea for eleven months. Two months earlier she had had a bloody discharge from the vagina, accompanied by much pain on the left side of the abdomen; she believed this to be a return of menstruation, but she had no period in the following month. She had noticed the tumor some six months previously; the swelling had progressively increased in size from that time, but had ceased growing latterly. She was never inconvenienced in any way, apart from the natural sensation of weight caused by the tumor itself. A median laparotomy was performed. The tumor on the right side was unquestionably an ovarian pregnancy, which had grown between the two layers of the broad ligament. The relation of the tube to the sac wall seemed to prove this, besides the total absence of ovarian tissue on that side. The interesting points in the case are: the long duration of the gestation, the lack of distinctive symptoms, and the impregnation of the opposite tube, which caused the patient to seek medical advice.

Acute Thyroidism Following Ligation of Superior Thyroid Artery.—Nash reports a case of acute thyroidism following ligation of the superior thyroid artery for a large vascular goiter and extreme exophthalmos. The patient recovered.

Edinburgh Medical Journal

32: 441-500 (Sept.) 1925

Development of Therapeutics. D. M. Lyon.—p. 441.
Mental Invalids. I. Body-Mind. C. C. Easterbrook.—p. 460.
Case of Cerebral Hemorrhage with Glycosuria in Child Aged 4 Years. D. G. E. Potter and A. R. MacGregor.—p. 482.

Indian Journal of Medical Research, Calcutta

13: 1-204 (July) 1925

Significance of Splenic Index in Kala-Azar Endemic Areas. J. D. Price and C. Strickland.—p. 1.
Buffered Solution for Perfusion of Isolated Organs. R. N. Chopra and S. Ghosh.—p. 7.
*Cephalandra Indica (Telakucha) in Diabetes. R. N. Chopra and J. P. Bose.—p. 11.
Chemotherapy of Antimonial Compounds in Kala-Azar Infection. XV. Certain Derivatives of P-Amino-Phenyl-Stibinic Acid. U. N. Brahmachari and J. Das.—p. 17.
Id. XVI. Blood Culture of Kala-Azar Patients on NNN Medium. I. Comparative Value of Peripheral Blood Culture, Spleen Blood Culture and Spleen Puncture in Diagnosis of Kala-Azar. II. Period at Which Sterilization of Peripheral Blood Takes Place During Treatment with Urea Stibamine. U. N. Brahmachari and B. B. Maity.—p. 21.
*_Clinical Method for Estimation of Amount of Quinin in Medicinal Solutions._ J. A. Sinton.—p. 25.
*Bodies Resembling Hemogregarines Found in Smears of Human Blood. J. A. Sinton.—p. 29.
Working of Slow Sand Filters. V. G. Raju.—p. 33.
*Normal Sugar Content of Blood and Sugar Tolerance Test. S. L. Bhatia and G. Coelho.—p. 41.
Bacteriologic and Laboratory Technic; Microscope. W. F. Harvey.—p. 53.
Anesthesia Produced by Intra-Arterial Injection of Apothesine. J. P. Arland.—p. 95.
Some Indian Species of Genus Phlebotomus. XIV. Hypopygium of Female Phlebotomus. J. A. Sinton.—p. 97.
Effect of Liquor Formaldehyd on Snake Venom. II. Diminution of Toxicity of Daboia Venom. C. De C. Martin.—p. 109.
Chemotherapy of Antimonial Compounds in Kala-Azar Infection. XVII. Preparation of Urea Stibamine. U. N. Brahmachari.—p. 111.
Effect of Storage on Potency of Antivenomous Serum. L. A. P. Anderson and J. F. Caius.—p. 113.
Bactericidal Power of Blood of Rats as Measure of Their Immunity to Plague. R. H. Malone and B. P. B. Naidu.—p. 121.
Incidence of Kala-Azar on Pusa Estate. D. F. Michael.—p. 131.
Bodo Philebotomi (Herpetomonas Phlebotomi) (Mackie 1914). H. E. Shortt.—p. 141.
*Experiments to Decide Whether Bed Bug (Cimex Hemiptera, Fabr.) Can Transmit Indian Kala-Azar. H. E. Shortt and C. S. Swaminath.—p. 143.
*Systemic Infection of Monkey (Macacus Rhesus) by Intradermal Inoculation of Spleen Puncture Material from Case of Indian Kala-Azar. H. E. Shortt and C. S. Swaminath.—p. 149.
*Infection of Monkey (Macacus Rhesus) with Parasite of Indian Kala-Azar Following Introduction of Infective Material Into Lumen of Small Intestine. E. D. W. Greig and S. R. Christophers.—p. 151.
Feeding of Sandflies (Phlebotomus Argentipes) on Cases of Indian Kala-Azar. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 159.
Temperature in Relation to Culture of Herpetomonas Donovani on NNN Medium. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 167.
*Effect of Epinephrin Injections on Wassermann Reaction of Normal Subject. L. A. P. Anderson and J. A. Sinton.—p. 173.
Culicoides and Kala-Azar in Assam. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 175.
Effect of Salt Solutions of Different Concentrations on Parasite of Indian Kala-Azar. S. R. Christopher, H. E. Shortt and P. J. Barraud.—p. 177.
Selective Mediums for Gonococcus and Pneumococcus. N. Lal.—p. 183.
Phenol as Sterilizing Agent for Bacterial Antigen. N. Lal.—p. 187.
Viability of Bacterial Cultures. II. N. Lal.—p. 189.
Stability of Solid Calcium Hypochlorite. H. H. King.—p. 191.
Kala-Azar in Ramnad District of Madras Presidency. T. S. Balasubramanian.—p. 195.
Concentration of Quinin in Circulating Blood. H. W. Acton and R. N. Chopra.—p. 197.

Cephalandra Indica in Diabetes.—Telakucha (Cephalandra indica) has the reputation in Bengal of having a remarkable effect in reducing the amount of sugar in the urine of patients suffering from diabetes mellitus. Chopra and Bose tested the drug pharmacologically and clinically. They found that it contains an enzyme with amylolytic properties, a hormone and traces of an alkaloid, but none of these substances reduces sugar when administered subcutaneously to rabbits. Fresh juice extracted from the leaves, stem and root of the plant produces no reduction of sugar in the blood or urine of patients suffering from glycosuria.

Estimating Amount of Quinin in Solutions.—The method described by Sinton depends on the relative opacities produced in quinin solutions of varying strengths by the addition of equal amounts of Tanret's modification of Mayer's reagent.

Hemogregarines in Blood.—The points brought forward by Sinton strongly support Wenyon's view that the bodies described from smears of human blood as "hemogregarines" are not of a protozoal, but of a vegetable nature, that they are not parasites but contaminations of extraneous origin, and that "hemogregarines of man have still to be discovered."

Blood Sugar and Tolerance Test.—Blood sugar was estimated by Bhatia and Coelho in thirty-eight normal subjects, of whom eighteen lived on a "mixed" diet, and twenty were pure "vegetarians," partaking of large quantities of carbohydrates. In the former class (nonvegetarians), the average blood sugar was lower, tolerance for carbohydrates greater, and glycuresis less common than in the latter (vegetarians). The significance of these differences in the two classes of individuals is discussed.

Does Bedbug Transmit Kala-Azar?—A total of 138 *Cimex hemiptera,* all caught in the bedding of cases of kala-azar, were examined by Shortt and Swaminath by culture of the entire gut in NNN medium. The cultures were uniformly negative.

Experimental Kala-Azar.—Shortt and Swaminath assert that intradermal inoculation of a comparatively small amount of infective material from kala-azar resulted in a well marked and enduring invasion of the internal organs by the parasite of kala-azar, a result in marked contrast to the slight and transient infections described by some writers.

Experimental Kala-Azar.—The question as to whether kala-azar infection can occur through ingestion would seem to be answered in the affirmative by the results of experiments reported on by Greig and Chirstophers, though further positive results are necessary to confirm this finding.

Effect of Epinephrin on Wassermann Reaction.—Anderson and Sinton are of the opinion that if their technic is used, no reaction which would give rise to a false "positive" Wassermann reading is likely to follow the subcutaneous injection of epinephrin hydrochlorid in doses of 1 mg.

Journal of State Medicine, London

33: 401-450 (Sept.) 1925

Spread of Dysentery Considered from Aspect of Public Health. P. Manson-Bahr.—p. 401.
Human Filariidâe. G. C. Low.—p. 415.
Mites and Occupational Diseases. A. G. G. Thompson.—p. 419.
Sterilization of Water by Chlorin and Its Compounds. C. H. H. Harold.—p. 428.
Teeth of School Child. D. Mackay.—p. 440.

Medical Journal of Australia, Sydney

2: 245-272 (Aug. 29) 1925

Medical Responsibility Regarding National Health. F. S. Hone.—p. 245.
*Acute Pernicious Anemia with Epistaxis. J. J. Woodburn.—p. 257.
*Maydl's Hernia. G. Bell.—p. 258.

Acute Pernicious Anemia with Hemorrhage.—Woodburn's patient had hematuria for eight days and several severe attacks of epistaxis. The onset gave no clue to the ultimate diagnosis and termination of the case. The history suggested some lesion of the spine and hip joints and of the renal tracts. As was shown by examination these systems were unaffected. The patient's condition was probably one of a rapidly advancing hemolytic anemia (possibly of unknown streptococcal origin) with rapid destruction of red cells and reversion to a primitive type of megaloblastic red cell formation. That is, it was an acute pernicious anemia probably due to some unknown infecting organism, as shown by the rise in temperature and pulse rate. The pain in the spine and in the region of the hip joints was probably due to the changes taking place in the bone marrow. The hemorrhages, of course, are usual in any form of pernicious anemia, more especially in such an acute case as this. The necropsy findings confirmed the diagnosis.

Maydl's Hernia with Gangrene.—The importance of withdrawing and inspecting that portion of the gut which lies within the abdomen and immediately proximal to the constriction is shown by Bell's case. An intra-abdominal and intermediate loop of bowel, continuous with the two loops in the sac, was drawn down. It was 12.5 cm. (5 inches) in length and gangrenous. The strangulation was of the variety often referred to as "retrograde" and the hernia one sometimes referred to as Maydl's hernia. There was very slight distension of the bowel above the site of constriction. Twenty-five centimeters (10 inches) of small intestine including the gangrenous segment were resected. A lateral anastomosis was made. The lower end of the portion of ileum resected was 30 cm. (12 inches) from the ileocecal valve.

2: 273-300 (Sept. 5) 1925

Common Sense. E. Russell.—p. 273.
*Splenectomy in Acute Essential Thrombocytopenic (Hemorrhagic) Purpura. S. O. Cowen.—p. 279.
Talipes Calcaneus. W. K. Hughes.—p. 283.
Case of Cystitis Cystica Associated with Severe Hematuria. W. A. Hailes.—p. 285.

2: 301-358 (Sept. 12) 1925

Causes and Prevention of Maternal Morbidity and Mortality. E. S. Morris.—p. 301.
Pregnancy with Malformation of Vagina. H. A. Ridler.—p. 345.

Splenectomy in Hemorrhagic Purpura.—The clinical picture presented by Cowen's patient, characterized as it was by the presence of multiple spontaneous hemorrhages, suggested at once that she was suffering from an acute blood disease. Hemophilia could be excluded, owing to the sex of the patient. Moreover, in hemophilia extensive purpuric skin lesions are unusual, the hemorrhages are not spontaneous but follow some injury, however slight, and the bleeding time and platelet count are normal, though the coagulation time is greatly prolonged. It was, therefore, obvious that the case must be classed as one of purpura.

National Medical Journal of China, Shanghai

11: 219-308 (Aug.) 1925

*New Antiscarlatinal Serum. S. P. Chen.—p. 219.
*Production of Antiscarlatinal Serum. E. T. H. Tsen and P. Z. King.—p. 224.
Otosclerosis. Shih-Ping Ts'en.—p. 226.
Fibromyoma of Uterus; Six Cases. Y. Hsün-Yüan.—p. 234.
*Coexistence of Tuberculosis and Plague. H. M. Jettmar.—p. 257.
Hookworm Disease in China. W. W. Cort and N. R. Stoll.—p. 282.

Scarlet Fever Serum.—Throat swabs were taken by Chen from all the severe cases of scarlet fever encountered at the hospital, and *Streptococcus hemolyticus* was isolated from each case. A serum was prepared and from this organism, nineteen strains were used. This serum appears to have a decidedly curative effect in severe cases of scarlet fever, especially those which a long experience considers as likely to end fatally without it. The serum should be administered early in the disease. Although unconcentrated, the serum is required in a much smaller quantity than any of the other antiscarlatinal serums now available. Given early in virulent cases, it appears to ward off serious complications. This serum has not been made use of in the milder cases. In some severe cases it has the effect of bringing the temperature down by crisis. It appears to be of benefit in erysipelas developing in scarlatinal cases, by cutting short the course of the disease.

Scarlet Fever Serum.—Nineteen strains of hemolytic streptococcus isolated from the throats of scarlet fever patients were used by Tsen and King in the preparation of this serum. These organisms were grown in 0.5 per cent. glucose broth. After twenty-four hours' incubation at 37 C., the broth cultures were mixed together and centrifugalized; the supernatant clear fluid was then removed, and the sedimented bacteria were suspended in normal salt solution. This new suspension was recentrifugalized, and the sedimented bacteria were resuspended in normal salt solution and strained through sterile, fine-meshed gauze. By comparison with a standard suspension of barium sulphate, the bacterial count was adjusted to 5,000 million per cubic centimeter. This suspension was injected into the horse immediately. For immunizing the horse, dead cultures were used first. These were prepared by heating the bacterial suspension at 55 C. for one hour after it had been strained through gauze. Altogether twelve doses of dead and fourteen doses of living cultures of gradually increasing amounts were injected intravenously in the usual way. Test bleedings were begun after the fifth injection of the living cultures. When the serum was found to be satisfactory by means of protection tests on mice, regular bleedings were made. The serum, after separation from the blood clot, was preserved with 0.25 per cent. tricresol. Finally, tests for sterility, toxicity and potency were made. Two-tenths cubic centimeter of serum protects a mouse against 1,000 fatal doses of this organism.

Coexistence of Tuberculosis and Plague.—Experiments made by Jettmar show that plague bacilli do not penetrate into caseated tuberculous tissue and are only seen in small numbers in the tuberculous epitheloid tissue. Small tuberculous and plague necroses may fuse together. Plague bacilli when mixed with tubercle bacilli do not show any involution forms. In vitro the two kinds of bacteria do not essentially injure each other.

Journal de Chirurgie, Paris

26: 129-256 (Aug.) 1925

*Buried Tube to Drain Bile into the Duodenum. P. Duval and A. Richard.—p. 129.

Internal Drainage of Bile.—Duval and Richard give an illustrated description of the technic for burying a tube in the common bile duct, after cholecystectomy, to carry the bile down into the duodenum below the papilla of Vater. Ten cases are reported to show the advantages of this internal rather than external drainage.

Journal de Radiologie et d'Electrologie, Paris

9: 353-382 (Aug.) 1925

*Roentgenography of Vertebral Tumors. J. A. Sicard et al.—p. 353.

Roentgenographic Aspects of Tumors of the Vertebrae.—Sicard and his co-workers give a roentgenologic description of different forms of secondary cancer, primary sarcoma, myeloma and lymphogranuloma in the spine. The twenty-seven cases reported confirm the importance of roentgenography in the differential diagnosis. Sixty-eight fine plates show the roentgenographic and photographic findings.

Journal d'Urologie Médicale et Chirurgicale, Paris

20: 97-192 (Aug.) 1925

*Interrupted Micturition. O. Mercier.—p. 97.
*Remote Results of Suprapubic Prostatectomy. P. Salvini.—p. 103.
*Hematuria in Pyelonephritis. H. Blanc.—p. 125. Conc'n.
Gonococcus Vesiculitis Simulating Kidney Colic. Avramovici.—p. 141.
Technic for Methylene Blue Treatment of Cystitis. Blanc.—p. 144.

Interrupted Micturition.—Mercier has observed that hypertrophy of the trigon, forming a bar between the mouths of the ureters, is liable to interrupt the flow of urine. As the bladder contracts, this bar stiffens and holds back the urine. Then, as the bladder relaxes, this bar relaxes with it, and the pent up urine escapes. Interrupted micturition is thus not peculiar to a diverticulum.

Suprapubic Prostatectomy.—Salvini states that 70 per cent. of 180 operations of this kind cured the patients completely and permanently (1921-1924). To prevent orchitis, the vasa deferentia are systematically ligated and severed. This does not impair potentia coeundi. The mental condition improved, and in one case there was no return of the epileptic seizures of the preceding few years. One man developed neurasthenia after the operation, and committed suicide in delirium. Tardy hemorrhage occurred in three cases; in two, probably from the dropping off of the eschar; in the other case, the hemorrhage a year later cannot be explained so easily. No recurrence of the adenoma was known in any instance.

Hematuria in Pyelonephritis.—Blanc presents evidence to demonstrate the remarkable efficacy of simple catheterization of the ureter in arresting a hemorrhagic tendency in pyelonephritis, supplementary to the usual measures.

Nourrisson, Paris

13: 285-348 (Sept.) 1925

*Disturbances During Dentition. A. B. Marfan.—p. 285.
*Jaundice of the New-Born. G. L. Hallez.—p. 297.
The Microscopic Lesions in Rickets. J. Debray.—p. 312.

Pathologic Phenomena of the First Dentition.—Marfan reiterates that there are no bodily disturbances for which the dentition is directly responsible. But in an infant with the spasmophilic diathesis, spasm of the larynx or generalized convulsions may be brought on by a difficult eruption of teeth. Fever during teeth cutting may be due to inflammation around the tooth crown, or to a latent disease aroused by the dentition. It is possible that eruption of teeth, especially if it is difficult and abnormally prolonged, might produce humoral disturbances, favoring the appearance of pathologic phenomena. The latter in certain cases may be rapidly relieved by opening the dental sac through a crucial incision of the gum.

Causes of Jaundice in the New-Born.—Hallez' conclusions are based on thorough examination of nineteen cases. Icterus neonatorum is caused not only by an intense hemolysis in the first hours of life, but also by a transient functional deficiency of the liver, as revealed by hypercholemia, frequent choluria and even urobilinuria.

Paris Médical

57: 225-236 (Sept. 19) 1925

Consequences of Influenza Anergy. Dopter and Jausion.—p. 225.

57: 237-252 (Sept. 26) 1925

*Bone Implants in Lower Jaw. H. Rouvillois.—p. 237.
Physiotherapy in Respiratory Affections. G. Rosenthal.—p. 245.
Organotherapy for Sterility in Women. E. Pouget.—p. 249.

Bone Grafting in Pseudarthrosis of the Lower Jaw.—Rouvillois employed bone implants in three cases of pseudarthrosis complicating a gunshot fracture of the jawbone. The grafts were taken from the tibia, and the usual bone grafting technic applied. Consolidation of the bone parts was manifest after four months, allowing mastication with artificial teeth. The bone implants were not applied until several weeks or months after the infectious process had healed, and all traces of osteomyelitis or fistula had disappeared.

Presse Médicale, Paris

33: 1249-1264 (Sept. 19) 1925

Weakness of Extensor Muscles as Sign of Lead Poisoning. F. H. De Balsac et al.—p. 1249.
Etiology of Cancer, and Gye's Theory. E. Harde.—p. 1251.
Thoracectomy for Pleural Fistula. M. Guilleminet and R. Labry.—p. 1252.
*Treatment of Gonorrhea. A. Tansard.—p. 1254.
*Vaccination Against Measles. M. B. Sindoni.—p. 1255.

Autovaccination Associated with Protein Therapy in Gonorrhea.—Tansard suggests that injections of vaccine and protein should be given simultaneously in treatment of gonorrhea. Three cases of chronic urethritis were cured by this method, while the same injections, given separately had been without results. Under the simultaneous injections, fifteen patients with acute or chronic urethritis recovered, without local treatment. From fifteen to twenty injections were usually applied; in certain cases more injections were necessary. In one case of thirty years' standing, an apparently inevitable prostatotomy was avoided by this treatment, prolonged for three and a half months. An autogenous vaccine, six thousand millions of bacteria per cubic centimeter, was used in six cases with a periurethral abscess. A dose of 0.2 c.c. was given at the first injection, gradually increased by 0.1 to 1 c.c. A dose of 1 c.c. of protein was used in the first injection. If the reaction was not pronounced, 5 c.c. was given the next time. The injections were given daily, or thrice weekly. In the abscess cases, the suppuration stopped and the fistula healed after four or five injections. A patient with gonorrheal rheumatism of the pseudophlegmonous form recovered without the slightest ankylosis. In this case one injection of over 3 c.c. of autovaccine and one of 6 c.c. of protein had been given daily for twelve days. Seventeen injections of a stock vaccine, containing gonococci and staphylococci, given before, had been ineffectual. Shock, characterized by moderate fever and general malaise, may occur after the first four injections. Tansard advises a vegetarian diet the day of injection, and constipation averted during the treatment. A colloidoclastic diathesis and asthma are contraindications for these injections. With a periurethral abscess, this treatment gives better results than an operation or a vaccine alone, since folliculitis and urethritis are cured at the same time as the abscess.

Prophylactic Vaccination Against Measles.—Sindoni used vaccine prepared from cultures treated with phenol at 0.5 per cent. From three to five injections of 2 c.c. each, were given intramuscularly every second day. About 346 children in asylums, aged from 1 day to 14 years, were vaccinated. In the asylum where vaccination was applied immediately after the occurrence of a few measles cases, only one child developed the disease. In another asylum, where vaccination was late, eighty children out of the hundred developed measles. Sixty children, aged from 6 months to 12 years, were vaccinated in private homes. None developed measles. About 133 children of the same age, that had been directly exposed to measles infection in the hospitals, were vaccinated. The disease developed in eight.

33: 1265-1280 (Sept. 23) 1925

*Arteriotomy for Embolus. C. Lian and P. Moure.—p. 1265.
*Organotherapy in Tuberculosis. Bayle.—p. 1266.
*Review of Research on Measles. R. Pollitzer.—p. 1269.
*The Dual Innervation of the Voluntary Muscles. P. Oury.—p. 1271.

Embolectomy.—Lian and Moure report a case in which an embolus was removed from the axillary artery in a man with a failing heart. The incision of the artery and extraction of the embolus under local anesthesia brought complete restoration of the circulation, demonstrated by the arterial pressure and the oscillometer findings. The arm regained normal function. They reiterate that the operation is indicated only for an embolus and not for a thrombus. The embolus may be differentiated by the exaggerated pulsation of the artery above the point of obstruction, compared with the sound side. This excessive pulsation, cephalad, is not observed with a thrombus.

Spleen Extract in Treatment of Tuberculosis.—Bayle reports as the first results of this treatment, which he has applied in several hundreds of cases since 1903, a gain in weight of 4 or 6 pounds. This was manifest the first two or three weeks of the treatment; and an average of 24 pounds was gained in the year. Lesions of the first stage of tuberculosis improved within the first month. Cold abscesses of the elbow were cured in one month; of the knee in two or three; of the hip joint in six or eight months. Nonsuppurating bone and joint lesions retrogressed, and the limbs regained normal function. A surprising effect was noted in tuberculous glands. The number of tubercle bacilli gradually diminished and finally disappeared entirely. An extract of pig's spleen was used, in 5 c.c. ampules, for the injections, or was given in syrup by the mouth. The oral route was used in prophylaxis or as adjuvant to the injections. Adults are given daily four tablespoonfuls, each representing 25 gm. of spleen tissue, taken with the meals. Children under 3 years are given daily one teaspoonful for four days during the week; under 5 years, two; under 7, one tablespoonful; under 10, two; under 14, three. Adults and children above 10 are given the syrup for three weeks; then a pause for a week or two. One or two injections, each of 5 c.c., are given daily to adults. The dose of 1 c.c. is injected per year of age, in children under 5. The injections are made subcutaneously, in the abdomen, or intramuscularly, in the thigh; they are not accompanied by fever or anaphylactic phenomena. The treatment should be continued for a few months after apparent recovery. He claims 100 per cent. of recoveries in tuberculosis of the first degree and 75 per cent. in all. This splenic organotherapy, he adds, is absolutely harmless. It is being used in a number of French hospitals.

Etiology and Pathogenesis of Measles.—After a circumstantial review of the research work on measles, Pollitzer summarizes Caronia's experiments leading, he says, to the discovery of the specific micro-organism in 1923.

The Dual Innervation of Striped Muscle.—Oury emphasizes that the voluntary or reflex contraction lasts only as long as the excitation in striated muscle fibers, innervated by the cerebrospinal nerve terminals. These fibers possess the "contractile tone" and command the voluntary movements. Muscle fibers innervated by the sympathetic, become longer or shorter during excitation, and the induced condition still persists after the stimulus ceases. These fibers possess the "plastic tone." The existence of both "movement muscles and fixing muscles" is manifest in vertebrates and in man. Lesions of fibers with sympathetic innervation are responsible for decerebrate rigidity or extrapyramidal contracture in which the "plastic tone" predominates. Affections of fibers with cerebrospinal innervation may induce muscular atrophy or dystrophy, also myasthenia. Oury recalls that Royle and Hunter suggested section of the sympathetic for exaggerated "plastic tonus" in Parkinson's disease, encephalitis sequelae and decerebrate rigidity.

Schweizerische medizinische Wochenschrift, Basel

55: 885-904 (Sept. 24) 1925

Metabolism and Skin Diseases. W. Lutz.—p. 885.
Curvatures of the Spine. M. Dubois.—p. 890. C'cn.
*The Blood Pressure in Children. Thomas.—p. 896.
*Vaccine Encephalitis. F. Lucksch.—p. 897.
*Prevention of Thrombosis. M. Walthard.—p. 898.

The Blood Pressure in Children.—Thomas measured the blood pressure in 627 children (7-14 years of age). The systolic pressure in boys between the ages of 7 and 11 was 98, the diastolic, 61 mm. of mercury; in girls of the same age. 93 and 58. In boys from 11-14, the systolic pressure averaged 107, the diastolic 71 mm.; in girls, 106 and 63, respectively. The pressure was lower in tuberculous children but only in the older group. The amplitude of the blood pressure is 5 to 10 mm. greater in children than in adults.

Vaccination Encephalitis.—Lucksch observed three cases of encephalitis following vaccination against smallpox. He advises to vaccinate only perfectly healthy children, and to defer the vaccination at times of an epidemic of encephalitis or poliomyelitis.

Prevention of Thrombosis.—Walthard endeavors to ward off thrombosis and embolism by systematic exercises of the women, beginning on the first day after labor or a gynecologic operation. The foot end of the bed is raised 50 cm. above the floor for women with varicose veins. He describes the simple, progressive movements of the arms and legs and deep breathing which he advocates while the women are confined to bed.

Pediatria, Naples

33: 917-972 (Sept. 1) 1925

*Complement Fixation in Smallpox and Vaccinia. P. Ritossa.—p. 917.
Resistance of the Leukocytes in the New-Born. C. Gallo.—p. 924.
*Specific Substances in Blood and Urine in Scarlet Fever. B. Peschle. —p. 931.
*Pituitary Extract in Treatment of Enuresis. L. Bonacorsi.—p. 936.
Venipuncture in Infants. L. Consiglio.—p. 954.

Complement Fixation in Smallpox and Vaccinia.—Ritossa obtained complement fixation with the serum from smallpox patients and from vaccinated persons when using the crusts from smallpox patients as antigen. This speaks for the identity of the virus of vaccinia and smallpox, and for its presence in the crusts in smallpox.

Specific Substances in Blood and Urine in Scarlet Fever.—Peschle found in the blood and urine of scarlet fever patients, during the eruption, toxic substances giving positive skin tests in susceptible individuals. Preventive vaccination with Caronia's cultures protected against these substances.

Pituitary Extract in Treatment of Enuresis.—Bonacorsi reports recovery of eight out of twelve children with enuresis and great improvement in three. She used a series of injections of pituitary extract.

Policlinico, Rome

32: 1345-1380 (Sept. 28) 1925

*Periarterial Sympathectomy. L. Durante.—p. 1345.
Sympathectomy in Tuberculosis of Bones and Joints. C. Bertone.—p. 1349.
Case of Sympathectomy. A. Dami.—p. 1353.
Proteid Sugar and Acetone in Insulin Treatment. D. Liotta.—p. 1354.
Specific Prevention of Scarlet Fever and Measles. G. Caronia.—p. 1357.
Limits of Quinin Prophylaxis. A. Lusignoli.—p. 1359.

Periaterial Sympathectomy.—Durante points out that an approximately complete interruption of the sympathetic fibers can be accomplished only by removing the adventitia nearer the periphery of the extremity. This method has the further advantage of avoiding the untoward possibilities of an intervention on the large arteries. His six patients recovered. Among them was one with a mal perforant; sympathectomy on the femoral artery had failed, but the decortication of the posterior tibial was successful. This patient, however, had a relapse ten months later.

Riforma Medica, Naples

41: 817-840 (Aug. 31) 1925

*Variations of Arterial Pressure. A. Luisada.—p. 817.
Juvenile Osteochondritis of Spine. G. Valtancoli.—p. 823.
Treatment of Tuberculous Peritonitis with Pneumoperitoneum. D. Maestrini.—p. 827.

Variations of Arterial Pressure.—Luisada determined every three hours the systolic and diastolic blood pressure in forty-five patients and five controls, and found four types of the curve.

41: 841-864 (Sept. 7) 1925

*Duodenal Feeding in Gastric Ulcer. G. Raffaele.—p. 841.
Duodenopyloric Stenosis of Gallbladder Origin. O. Cignozzi.—p. 844.
*Sodium Chlorid Fever. G. De Nito.—p. 848.
Surgery of Perforated Gallbladder. E. Aievoli.—p. 850.
Etiology of Tuberculosis. F. Piccininni.—p. 851.
The Fight Against Tuberculosis. A. Ferrannini.—p. 858.
Gummatous Hepatitis and the Echinococcus. O. Cantelli.—p. 859.

Duodenal Feeding in Gastric Ulcer.—Raffaele reports favorably on Einhorn's method, and draws the attention of Italian physicians to it.

Sodium Chlorid Fever.—De Nito failed in his attempts to induce hyperthermia in animals by intravenous or subcutaneous injections or by ingestion of physiologic or hypertonic solution of sodium chlorid.

Rivista di Clinica Pediatrica, Florence

23: 577-648 (Sept.) 1925

*The Growth of Normal Infants at Florence. D. Moggi.—p. 577.

The Growth of Normal Infants at Florence.—Moggi recorded the findings under seventeen different headings as he examined infants at Florence during the first year of life, a total of 400 individual measurements. The children of Latin peoples are usually shorter and weigh less at birth than Anglo-Saxon infants. Allowing for this racial difference, his figures are approximately the same as those obtained by others in other countries.

Brazil-Medico, Rio de Janeiro

1: 27-44, 1925

*The Aorta in Congenital Syphilis. Martagão Gesteira.—p. 27.
Indications for Operative Treatment for Uterine Fibromas. P. P. Paes de Carvalho.—p. 31.
Gonococcus Ophthalmia. E. Campos.—p. 33.
*Malarial Coma. Clinio de Jesus.—p. 34.

Exaggeration of the Second Aortic Sound in Syphilis.—Martagão Gesteira did not find in adults this sign to which Rubião Meira called attention in 1916 as a new sign of syphilis. But he discovered it almost constantly in children with congenital syphilis, and he relates some case histories to show its importance in the differential diagnosis, and as revealing a surprising amount of aorta disease in apparently healthy children. The course of the cases, however, confirmed the reliability of this early warning sign. It confirms Beretervide's discovery of an abnormally wide aorta in 99 per cent. of 200 children with congenital syphilis.

Malarial Coma.—A youth was brought into the hospital in a comatose condition for which no cause was apparent until the malarial parasite was found in the blood. The absence of mononuclears was ascribed to the intensity of the infection.

Repertorio de Medicina y Cirugía, Bogota

16: 265-318 (April) 1925

*Primary Infantile Acidosis. C. Torres Umaña.—p. 268.
Stoll Method for Estimating Hookworm Infestation. Wilson.—p. 301.
History of Leprosy in Colombia; Carrasquilla. Rico.—p. 304. C'tn.

Primary Acidosis in Children.—Torres Umaña thinks we must distinguish this primary infantile acidosis from acidosis in adults, and that secondary to febrile conditions, inanition, diabetes, etc. He says it is frequently observed at Bogota, and is often grave, appearing in the form of periodical uncontrollable vomiting, a meningeal form, and a form with similar headache, pallor and acetonuria, but, as the vomiting ceases, the temperature and the general condition grow rapidly worse, with air hunger and enlargement of the liver, dysphagia and increasing prostration. The pulse may keep good throughout. Recovery is slower than in the other forms. About 50 per cent. of the children are between 7 and 12 months old. In the extremely toxic cases, he never witnessed any benefit from transfusion of blood. The main reliance is on alkalies, and dieting to restrict production of acids. Two of four small infants recovered after injection in the longitudinal sinus of a solution of sodium bicarbonate treated with carbon dioxid.

16: 319-364 (May) 1925

Text of the New Law in Colombia on Social Hygiene and Care of the Sick and Disabled.—p. 321.
Case of Influenzal Meningism. L. A. Forero Rubio.—p. 335.
*Creatinin in the Blood. R. Saravia Gallo.—p. 337.

Creatinin in the Blood in Colombia.—Saravia Gallo reviews the present status of our knowledge of creatinin, and states that his research on 113 persons at Bogota demonstrated that the normal average is much below that in Europe (2.5 mg.). At Bogota the average for healthy men is 1.7 mg. per hundred cubic centimeters of blood, and, for women, from 1.3 to 1.5. He found the creatinin level high in chronic parenchymatous nephritis and uremia, and wherever there was much tissue destruction. The level rose a little during the onset of pneumonia, malaria, typhoid fever and other febrile conditions, but not in the first stage of syphilis or diabetes. The creatinin is below the normal average in the debilitated and in convalescents, and also as term approaches in pregnancy. Experiments on rabbits showed the same creatinin content after severe exercise as before, thus confirming that the creatinin is endogenous and does not proceed from muscle tissue waste.

Revista de la Asoc. Médica Mexicana, Mexico City

3: 887-931 (Aug.) 1925

Tribute to Daniel A. Carrión. T. G. Perrin.—p. 889.
Vaginal Ligamentopexy by Wertheim's Technic. B. Bandera.—p. 894.
When Can We Say Gonorrhea is Cured? M. Vázquez.—p. 898.
*Bullet Wound of Fetus. J. Rábago.—p. 902.
*Epinephrin in Treatment of Gas Gangrene. S. Uribe Rivera.—p. 905.
Necessity for Teaching Individual Prophylaxis to Supplement the Present Fight Against Venereal Disease. I. Chávez.—p. 910.

Fetus Shot in the Thorax.—The woman died from hemorrhage after the viable child had been extracted by cesarean section, after she had received a gunshot wound in the abdomen. The bullet had passed through the thorax of the fetus, entering in the tenth left interspace and emerging in the suprascapular region above. Blood escaped from the child's mouth when it was suspended by the feet. The child has survived in good condition; there was not even an appreciable pleural effusion, and the wounds healed by primary intention.

Epinephrin in Infected Wounds.—Uribe Rivera injected 0.5 c.c. of the official solution of epinephrin in the vein at the elbow in a case of gas gangrene of the leg that had required amputation and an emergency exarticulation at the hip joint. The man was apparently moribund, but he recuperated by the next day, when a second injection, 0.25 c.c., was given, with complete recovery. Similar success was realized in two other cases of gas gangrene, of the arm or hand. The third case was in an intern who had been contaminated during the operation on the second case. All recovered under the epinephrin injections.

Revista de Medicina y Cirugía, Caracas

8: 91-113 (March 31) 1925

*Acute Scarlatinal Polyarthritis. F. de P. Rivas Maza.—p. 91.
The Sedimentation Test in Pulmonary Tuberculosis. Fenstermann and Baldó.—p. 95.

Acute Polyarthritis of Scarlatinal Origin.—Rivas Maza reports a case of severe involvement of nearly all the joints, large and small, seven days after the development of the principal eruption in a case of retrospectively diagnosed scarlet fever in a young woman. Syphilitic rheumatism had been assumed by the attending physician and he had sent the patient to the hospital for neo-arsphenamin treatment. The urine was practically normal, and the arthritis subsided completely in a week under simple diuretics and disinfectants for the kidneys, including sodium benzoate. Rivas Maza comments on the harmless and prompt recovery in such cases of scarlatinal polyarthritis which has no need for heroic measures or the usual treatment for articular rheumatism. In three cases in 1924 scarlet fever developed in parturients, and streptococci, staphylococci, pneumococci, the colon bacillus and saprophytes were cultivated from the throat but there was no puerperal infection.

Semana Médica, Buenos Aires

2: 277-332 (Aug. 6) 1925

*Sporadic Plague. J. R. Paso.—p. 277.
*Cancer of the Tongue. R. Finochietto.—p. 288.
Suggested Changes in Curriculum. J. Llambias.—p. 296.
Report of the Public Health Service for 1924. G. Aráoz Alfaro and T. Padilla.—p. 299.
The Principles for Radium Treatment. D. Brachetto-Brian.—p. 302.
Apparatus for Injection of Stain for Cholecystography. J. A. Saralegui.—p. 308.
Tuberculosis in Schools for Weakly Children. P. Winocur.—p. 311.
*Abstention in Tubal Abortion. A. Chueco.—p. 314.
Encapsulated Purulent Pleurisy of Appendix Origin, Spontaneous Recovery After Appendectomy. E. Beretervide and F. Pozzo.—p. 319.
*Decomposition and Congenital Syphilis. J. Medeiros.—p. 322.
Case of Double Hearing of Certain Sounds from Relaxation of Left Drum Membrane. V. Ribón.—p. 324.

Sporadic Cases of Plague.—Paso describes a case of plague with primary and secondary plague carbuncles and fatal septicemia. Two other fatal cases of plague had preceded it in the same district in the three years before, but no connection between the cases could be discovered. Unusual numbers of rats had infested the stable where the man had worked, and some were sick. The rats migrated soon after, but no further cases of plague have developed during the nearly three years since.

Cancer of the Tongue.—Finochietto states that in the case described ligation and severing of the lingual arteries on both sides reduced the large cancer on the tongue to a fifth of its former size in a very few days. With invasion of the tonsils, he ligates the inferior pharyngeal arteries also. He relates some typical instances to show the advantages of preliminary ligation before operating on the tongue, or as a palliative measure in inoperable cases.

Abstention in Tubal Abortion.—Chueco's practice is to give morphin first, to combat the shock. If the tube is permeable, the fetus dies, and there is tubal abortion. If the openings are obstructed, the fetus does not die, and the tube bursts. In either condition the tube may be empty when palpated. The rupture requires an emergency operation, but he always refrains until the diagnosis is certain. He reiterates that complete tubal abortion does not require an operation. There is not much extravasation of blood, and resorption of this is promoted by diathermy. The indications are merely to combat the shock; this is more pronounced when there have been no preceding symptoms. In operating, when the tumor can be reduced and brought outside, he extirpates it through the anterior vagina, with a supplementary posterior colpotomy when drainage is needed. He demonstrated a case of this kind. The signs and symptoms had indicated a tubal pregnancy of two and a half months. The tube was found obstructed, with rupture impending, but it was safely removed by anterior colpotomy, and the woman was up and about in six days.

Malnutrition and Congenital Syphilis.—Medeiros reports two cases in which what seemed to be typical malnutrition in young infants, of the Finkelstein decomposition type, yielded promptly to tentative treatment for congenital syphilis.

2: 401-468 (Aug. 20) 1925

*Experimental Disease of the Internal Ear. R. Podestá.—p. 401.
*Separation of the Epiphysis. C. Lagos Garcia.—p. 413.
Opening Lecture on Skin and Venereal Diseases. Baliña.—p. 423.
Laws Regulating Biologic Action of Roentgen Rays. Saralegui.—p. 429.
*Arterial Tension in General Practice. J. B. de Quirós.—p. 436.
*Syphilis of the Prostate. J. Salleras.—p. 450.

Experimental Labyrinthitis.—Podestá's nineteen photomicrographs confirm that the bone lesions in the internal ear are always preceded by necrosis or purulent destruction of the mucosa of the middle ear, acute or chronic, of various origins.

Detachment of the Epiphysis of the Neck of the Femur.—Lagos Garcia presents evidence to show that one of the features of the adiposogenital syndrome is a peculiar fragility of the tissues forming the junction of the shaft of the femur with the epiphysis. The epiphysis is liable to separate in girls of this type. In the three cases described the girls were all 12 years old, and no trauma was known. This detachment of the epiphysis is often mistaken for fracture of the cervix or a sprain of the hip joint. Stout girls at this age should be supervised with care—including frequent roentgen-ray examination when they complain of slight pains in this region, and the joint should be relieved of strain, and organotherapy be applied until this critical age of extra fragility of the epiphysis is past. The pains may be slight, with very little limping, but these disturbances are tenacious. There is seldom spontaneous pain when reclining.

The Blood Pressure in the Tuberculous.—De Quirós tabulates the findings in regard to arterial pressure and viscosity of the blood in 100 patients with pulmonary tuberculosis, calling attention to the ratio between them characteristic of different phases of the tuberculosis.

Syphilis of the Prostate.—Salleras relates the case history of a man, aged 55, who for about a year had had pollakiuria in the second half of the night, with dysuria and pains after micturition. These disturbances had been transient until the last three months when they became more severe and tenacious, and micturition was imperative every half hour during the day, and extremely difficult. He had been treated for gonorrhea and syphilis in his youth but had never noted a chancre. The prostate was enlarged, the bladder irritable, with retention of 20 c.c. of urine; and cancer seemed certain, but under tentative treatment for syphilis all the symptoms subsided. Nothing of the former clinical picture was left by the end of two months except slight initial dysuria, and this was gradually disappearing. In twenty-eight such cases on record, the spirochete was found in the prostate in two. The ages ranged from 18 to 73. In some cases there were continual pains, spreading to the legs, and in some there was complete retention. There may be hematuria or hemaspermia, a sensation of a foreign body in the rectum, pain in the perineum, or difficulty in defecation. The good general condition is also instructive, and the long course.

Deutsche medizinische Wochenschrift, Leipzig

51: 1555-1598 (Sept. 18) 1925

Lymphogranulomatosis, Tuberculosis and Neoplastic Irritation. H. Stahr.—p. 1555.
*Constitutional Factor in Pernicious Anemia. Neuburger.—p. 1557.
*Metabolism After Resection of Intestine. H. Wildegans.—p. 1558.
Treatment of Bronchial Asthma. A. Kempinski.—p. 1561.
*Cocainism and Homosexuality. E. Joël and F. Fränkel.—p. 1562.
Eye Disturbances After Veronal Poisoning. K. Steindorff.—p. 1565.
*Acetylene Anesthesia. O. Mallebrein and J. H. Maier.—p. 1567. C'cn.
Transverse Presentations. W. Hannes.—p. 1569. C'cn.
Liver Function Test with Amino-Acids. Von Falkenhausen and B. Boehm.—p. 1571.
Microtest for Phosphoric Acid. K. Samson.—p. 1571.
Relaxation of the Diaphragm. J. Szántó.—p. 1572.
*Treatment of Laryngeal Diphtheria. K. Ochsenius.—p. 1573.
Treatment of Furunculosis. Von Grosschopff.—p. 1575.
Treatment of Gonorrhea. Vertun.—p. 1575.
Insulin Treatment. A. Wagner.—p. 1576. *Begun, p. 1489.*
The Hygiene Exposition at Düsseldorf. M. Fraenkel.—p. 1578.
Vaccination Propaganda. G. Benjamin.—p. 1579.
Medical and Theologic Care for the Soul. J. H. Schultz.—p. 1580.
Blood Coagulation. E. Wöhlisch.—p. 1593.

Familial and Constitutional Factor in Pernicious Anemia.—Neuburger finds no evidence in favor of a hereditary factor in pernicious anemia: Four of his sixty-five patients believed that the disease had occurred in their family. His investigations showed that they were mistaken. He also examined the gastric secretion in twenty-nine relatives of fourteen patients. Only one of these subjects had achylia.

Metabolism After Resection of Intestine.—Wildegans resected parts of the small intestine in dogs. Proteins and fats were not well digested in the first four weeks after resection of two thirds of the small intestine, but the animals recovered later. They died from inanition when seven or eight tenths of the small intestine was removed. The jejunum and the ileum can compensate for each other.

Cocainism and Homosexuality.—Joël and Fränkel find that cocain addiction usually removes only the inhibition in a bisexual man. In heterosexual men the loss of potency without diminishing of the libido, together with the craving for new sensations, accounts for the inversion.

Acetylene Anesthesia.—Mallebrein and Maier report the results of 2,000 anesthesias made with acetylene at the gynecologic clinic at Würzburg. No death occurred; postoperative pneumonia was observed only in 0.3 per cent. and bronchitis in 0.3 per cent. of the women. The method surpassed in obstetrics all the classical types of anesthesia.

Treatment of Laryngeal Diphtheria.—Ochsenius believes that tracheotomy and intubation could be rendered superfluous by sufficiently large and early administered doses of antitoxin. At least 10,000 units are advisable even in infants, and reinjection is indicated six hours later if the improvement is not distinct.

Deutsche Zeitschrift für Chirurgie, Leipzig

193: 1-144 (Sept.) 1925

Experimental Studies on Trendelenburg's Sign. T. Hühne.—p. 1.
Indications for Local Anesthesia. W. Schaack.—p. 9.
*Local Anesthesia and the Blood Pressure. L. A. Andrejew.—p. 21.
Anatomy of the Phrenic Nerve. Kutamanoff.—p. 29. Comment. Felix.—p. 44.
*Treatment of Furuncle on the Face. R. Morian.—p. 45.
Roentgen Treatment of Malignancies. H. Chaoul.—p. 59.
Cancers in Young Persons. Uhlhorn.—p. 72.
Primary Multiplicity of Tumors. L. Duschl.—p. 77.
Rare Type of Mammary Cancer. E. Sattler.—p. 98.
Decortication of the Lung in Empyema. F. Caesar.—p. 107.
Plastic Reconstruction of the Esophagus. O. Riesenkampff.—p. 116.
Embolism of the Femoral Artery, Following Resection of the Stomach. F. Hesse.—p. 120.
Indirect Fractures of Long Bones. Esau.—p. 127.
Fractures of the Hand Bones. H. Schum.—p. 132.
The Neurinoma Question. Esau.—p. 140.

The Blood Pressure During Local Anesthesia.—Andrejew ascribes to the emotional condition the drop in blood pressure often observed just before an operation, but the lowering of the blood pressure during the operation is due to the operative trauma and the length of the operation. The more sensitive the tissues or the organs, the lower the pressure will drop. Even after the operation, the blood pressure may be low or drop, but this speedily returns to normal as a rule. His research on fifty women and thirty-four men during operations under local anesthesia demonstrated the value of supervising the blood pressure during the operation as it is possible by this means to detect the first sign of impending collapse or shock, and ward it off in time. He suggests the advisability of supplementing the local anesthesia with a few whiffs of ether at the moment of the greatest injury of the tissues when it is not absolutely certain that all the centripetal nerve tracts have been blocked.

Furuncle on the Face.—Morian asserts that the malignant furuncle with sepsis from the start is doomed, whatever treatment is applied. In the 103 cases of furuncles on the face in Payr's service, 1913-1924, 10.7 per cent. were of this fatal type. The others all healed under conservative measures, salve, protecting bandage and fluid food. The results were equally good in former years under incision, but no better, and the disfigurement is less.

Jahrbuch für Kinderheilkunde, Berlin

110: 1-128 (Sept.) 1925

*Surgical Treatment of Otitis. G. Brühl.—p. 1.
*Genuine Nephrosis and Idiopathic Edema. G. Fanconi.—p. 12.
"Pathogenesis of Rickets." E. Freudenberg and P. György.—p. 21.
*Treatment of Typhoid with Caronia's Vaccine. A. Tüdös.—p. 24.
The p_H of the Blood in Atrophic and Dyspeptic Infants. Z. v. Bókay.—p. 36.
Treatment of Pyelocystitis with an Autovaccine. Z. v. Bókay.—p. 40.
Pyelocystitis in Children. S. Went.—p. 52.
*Desiccated Milk for Infants. J. Schoedel.—p. 58.
"Goat's Milk Anemia." Ockel.—p. 62. Reply. Opitz.—p. 68.

Surgical Treatment of Otitis.—Brühl discusses the treatment of acute otitis media in children. A paracentesis should be made without much hesitation. Antrotomy is frequently necessary (grave symptoms, protracted suppuration) but it should not be done unnecessarily. A radical operation should be performed in a child only for a vital indication.

Genuine Nephrosis and Idiopathic Edema. — Fanconi observed recovery from genuine nephrosis with extensive edema in a child after pneumococcus peritonitis. He suggests vaccine treatment. The child's blood contained less chlorids during the edematous stage than later.

Treatment of Typhoid with Caronia's Vaccine.—Tüdös reports good results with the use of this vaccine. It consists of typhoid cultures dissolved by serum from typhoid patients and sterilized by phenol.

Desiccated Milk for Infants.—Schoedel considers dried milk superior to condensed milk. Yet it should not be used for children for more than one to three months, and should not be older than 2 or 3 months. It may be preferable to unsafe fresh milk in summer and while traveling. Other food containing a sufficient quantity of vitamins should be added.

Klinische Wochenschrift, Berlin

4: 1753-1800 (Sept. 10) 1925

The Regulation of the Cardiac Function. C. J. Rothberger.—p. 1753.
Local Circulatory Disturbances. B. Fischer.—p. 1758.
*Vaccination Against Tuberculosis. H. Dold.—p. 1763.
The Dosage in Inhalation Therapy. H. Schäffer.—p. 1765.
Insulin Treatment of Diabetes. A. Wagner.—p. 1767.
Arsphenamin in the Malaria Treatment of Paralysis. B. Dattner.—p. 1771.
*Insulin Hypoglycemia and Phosphates. J. Abelin and E. Goldener.—p. 1777.
A Hormone of the Frog Heart. L. Haberlandt.—p. 1778.
Heterogenetic Antigens in Erythrocytes. Friede and Grünbaum.—p. 1778.
Local Anesthesia. F. Rost.—p. 1779.

Experimental Vaccination Against Tuberculosis.—Dold tested the immunity of guinea-pigs immunized according to Langer's method (heat-killed tubercle bacilli), and according to Seiffert's method (defatted bacilli). He found that these "immunized" animals were no more resistant to a tuberculous infection than normal guinea-pigs.

Phosphates in Insulin Hypoglycemia.—Abelin and Goldener found that the oral administration of phosphates prevented or greatly diminished the hypoglycemia caused by insulin injection into normal animals.

4: 1801-1848 (Sept. 17) 1925

Pathology of the Brain and Psychiatry. E. Leyser.—p. 1801.
*Vibration of Diseased Heart. R. Kaufmann.—p. 1803.
*The p_H of Stomach Contents. H. Kalk and B. Kugelmann.—p. 1806.
*Serum Sickness and Tetany. R. Hopmann.—p. 1810.
*The Predisposition and the Incubation Period. H. Abels.—p. 1814.
Weak Roentgen Irradiation. F. Heimann.—p. 1815.
Heavy Metals in Treatment of Diabetes. E. *Schilling and R. Arnold.*—p. 1818.
*Extraction of Cataract. E. P. Braunstein.—p. 1821.
Sulphur Injections in Chronic Encephalitis. S. Adam.—p. 1822.
Insulin and Spasmophilia. H. Baar.—p. 1822.
*Antagonism of Insulin and Epinephrin. E. Boden and F. Wankell.—p. 1823.
*Incubation Period in Passive Anaphylaxis. E. Friedberger and S. Seidenberg.—p. 1823.
*Spasmodic Yelling in Parkinsonism. J. Schuster.—p. 1824.
Orbital Complications of Sinus Infections. A. Esch.—p. 1826.
Immunization Against Tumors. N. Waterman.—p. 1829.

Vibration of Diseased Heart.—Kaufmann draws attention to a vibration of the heart which may be felt with the lightly applied hand. It indicates a bad prognosis, especially in patients with angina pectoris. It may be transitory in exophthalmic goiter and in acute endocarditis.

The p_H of the Stomach Contents.—Kalk and Kugelmann had practically identical results with dimethylamido-azobenzol titration and the estimation of the hydrogen ions in the gastric contents. Both methods should be used only when a test meal containing much proteins has been given, or when there is much blood, mucus or lactic acid present.

Serum Sickness and Tetany.—Hopmann observed a case of tetany and another case of a spasmophilic tendency in the incubation period of serum sickness. The alkalosis changed into acidosis during the eruption of the urticarial rash.

The Predisposition and the Incubation Period.—Abels reviews the facts which speak for a regular prolongation of the incubation period whenever the relation between the virus and the organism is shifted in favor of the organism. This applies especially to measles.

Extraction of Cataract.—Braunstein removes the senile cataract without iridectomy after dilating the pupil by an injection of epinephrin under the conjunctiva.

Antagonism of Insulin and Epinephrin. — Boden and Wankell noted an apparent antagonism of the action of insulin and epinephrin on isolated intestine. Both preparations seem to have a constricting action on the Laeven-Trendelenburg frog preparation.

Incubation Period in Passive Anaphylaxis.—Friedberger and Seidenberg obtained an immediate passive sensitization of guinea-pigs by an injection of the serum of sensitized animals of the same species. The incubation period after passive sensitization with serum from rabbits is due merely to the nonspecific inhibiting action of the foreign serum.

Spasmodic Yelling in Parkinsonism.—Schuster's patient suffered from daily attacks of spasmodic yelling due to previous encephalitis. The attacks stopped after lumbar puncture and filling of the ventricles of the brain with air.

Medizinische Klinik, Berlin

21: 1409-1444 (Sept. 18) 1925

Diagnostic Value of Reflexes. R. Henneberg.—p. 1409.
*Iodin Treatment of Hyperthyroidism. Biedl and Redisch.—p. 1413. C'cn.
Economic Medical Treatment of Liver and Gallbladder Disease. T. Brugsch.—p. 1416.
Thrombopenic Purpura in Sepsis. F. Reiche.—p. 1418.
*Pyloric Ulcers. T. Bársony.—p. 1420.
*Tuberculosis of Infants and Congenital Syphilis. B. Epstein.—p. 1421. C'cn.
Hereditary Tremor. A. Roseno.—p. 1424.
*Congenital Dislocation of Hip Joint. H. Hilgenreiner.—p. 1425. C'cn.
Charcoal in Idiosyncrasy Against Morphin. S. Rechnitzer.—p. 1429.
Tubercle Bacilli in Cerebrospinal Fluid. P. Wichels.—p. 1430.
Cancer and Its Treatment. O. Strauss.—p. 1432. C'td.
The Rockefeller Institute and Its Research on Filtrable Viruses. W. Levinthal.—p. 1441.

Iodin Treatment of Hyperthyroidism.—Biedl and Redisch confirm good results of administration of iodin only in the typical cases of exophthalmic goiter. Hyperthyroid symptoms occurring in patients with a goiter of long standing did not improve.

Pyloric Ulcers.—Bársony points out that the majority of alleged pyloric ulcers are situated in the duodenum. Consequently the mechanical lesions due to the pressure of the gastric contents at this narrowest point of passage cannot have much pathogenetic influence in the origin of ulcers.

Tuberculous Infants and Congenital Syphilis.—Epstein observed among 11,600 infants nine cases of tuberculosis complicating congenital syphilis. He had the impression that the tuberculosis infection was rather milder in these infants.

Early Diagnosis and Treatment of Congenital Dislocation of the Hip Joint.—Hilgenreiner requires an early diagnosis and treatment. He has designed a splint which is applied only to the extensor surface of the thighs, and keeps clean, therefore, even in infants. It is light, and allows free access to the region of the joint.

Münchener medizinische Wochenschrift, Munich

72: 1585-1624 (Sept. 18) 1925

*Rickets and Irradiation of Cholesterol. H. Beumer.—p. 1585.
Roentgen-Ray Diagnosis in Pylorospasm. Heile.—p. 1586.
*Cure or Seeming Cure of Choked Disk. L. Heine.—p. 1588.
*Fat Embolism in Eye. F. Bernhard.—p. 1590.
Foreign Body in Abdomen. E. König.—p. 1590.
Treatment of Tuberculosis with Inhalation of Dust. A. Kuhn.—p. 1591.
*Culture of Tubercle Bacilli. K. L. Pesch and Simchowitz.—p. 1592.
Tyroglyphus as Human Parasite? C. Mirtl.—p. 1598.
Perforation of Gallstone Through the Navel. A. Ohly.—p. 1598.
Spontaneous Cure of Cancer of Stomach and Liver? H. Pollack.—p. 1600.
Colorimetric Micromethods. E. Becher and E. Herrmann.—p. 1601.
Microtest for Blood Sugar. E. Komm.—p. 1602.
Medicine in North America. L. Schönbauer.—p. 1603. C'td.
Centennial of N. Friedreich's Birth. H. Schröder.—p. 1605.
Treatment of Fractures. F. Lange.—p. 1605. C'tn.
The Future of Pediatricians. E. Liefmann.—p. 1608.
Treatment in Tuberculosis Sanatorium. J. Ritter.—p. 1609.

Rickets and Irradiation of Cholesterol.—Beumer irradiated cholesterol or its alcoholic solution with ultraviolet rays. He determined with the digitonin method the loss of cholesterol. It averaged 8.1 per cent. after two hours of irradiation and 9.5 per cent. after twenty hours.

Cure or Seeming Cure of Choked Disk.—Heine admits recovery only in two of his seventeen patients with choked disk in whom the symptom disappeared without decompressive trephining. The longer the time of observation after the alleged recovery, the less favorable are the statistics.

Fat Embolism in Eye.—Bernhard describes the ophthalmoscopic changes in a case of fat embolism. He claims that his is the first case observed intra vitam.

Culture of Tubercle Bacilli from the Sputum.—Pesch and Simchowitz had excellent results with the Löwenstein-Sumiyoshi method of cultivation of tubercle bacilli from the sputum. The culture was positive in three of nineteen cases with negative microscopic findings.

Wiener klinische Wochenschrift, Vienna

38: 1027-1050 (Sept. 17) 1925

Origin of Symptoms in Deficiency Disease. H. Abels.—p. 1027.
*Mouse Cancer and Fatigue. F. Mandl and F. Singer.—p. 1031.
Herpes Zoster and Latent Malaria. B. Coglievina.—p. 1034.
Cultivation of Tubercle Bacilli. M. Schattner.—p. 1035.
Percussion of the Apices. E. Ladeck.—p. 1039.
Pregnancy and Cancer of the Cervix. W. Weibel.—p. 1040.
The Latest Views on Treatment of Nephritis. J. Mannaberg. Supplement.—pp. 1-8.

Mouse Cancer and Fatigue.—Mandl and Singer produced by daily faradization fatigue in mice inoculated with cancer. The tumors grew more rapidly than in the controls. Injections of a protein-free extract from muscles of a faradized rat had a similar effect.

38: 1051-1074 (Sept. 24) 1925

*Surface Tension of Body Fluids. D. Adlersberg.—p. 1051.
Shock Treatment. K. Hajós.—p. 1055.
Foreign Bodies in the Lungs. W. Schmid-Sachsenstamm.—p. 1056.
*Pathogenesis of Melena of the New-Born. H. Högler.—p. 1059.
*Administration of Testis Extracts. O. Zoth.—p. 1062.
*Alkali Treatment of Gastric and Duodenal Ulcers. O. Porges.—p. 1066.
Nursing in Austria. H. Sternberg.—p. 1068.
Therapeutic Use of Hebra's Water Bed. L. Arzt. Supplement.—pp. 1-16.

Surface Tension of Body Fluids.—Adlersberg determined with his associates the surface tension of single fractions of urine and found the curves instructive. There are large variations in health, usually in the opposite sense to the specific gravity. Disease of the liver causes a low level of the surface tension and less variations (isostalaguria). Exophthalmic goiter is also associated with a low surface tension of the urine. Cachectic cancer and tuberculosis patients had a low surface tension of the serum—similar to that encountered in diseases of the liver. Blood diseases showed high figures—perhaps due to the low cholesterol content of the blood. Extremely acid stomach contents showed a high surface tension. Admixture of bile lowered it considerably.

Pathogenesis of Melena of the New-Born.—Högler reports on fifty-nine cases of melena among 31,500 childbirths. Erosions or ulcers of the gastro-intestinal tract were found in the five infants who died from it. He confirms Raisz' observation on occult bleeding in about one half of otherwise normal new-born infants. The cause of the melena may be the change in the circulation of the fetus, and perhaps the toxic products accumulating in a prolonged labor: delivery had been difficult in fourteen of his cases. Gelatin, injections of horse serum or of the mother's serum, and especially roentgen-ray irradiation of the spleen are recommended.

Administration of Testis Extracts.—Zoth believes that the only rational way of testing the efficiency of any method endeavoring to prevent senility is to start using it before old age sets in. Every summer for the last thirty years (since he was 30) he has been taking a series of injections of a testis extract prepared by Brown-Séquard's technic. The intervals between the courses should be at least nine months, he says, if one wants to avoid disturbances of the heart. He is inclined to attribute his muscular efficiency and easy recovery from various infections to this treatment. He is unable to assert any striking result in the sexual sphere. He recommends the same prolonged experiment to others in order to find out if his impression of a delayed senility is correct.

Alkali Treatment of Gastric and Duodenal Ulcers.—Porges had devised independently of Sippy a similar method. He uses, however, only calcium carbonate and magnesium oxid. He objects to sodium bicarbonate because it may produce a transitory alkaline reaction in the stomach, as well as too high an osmotic pressure if taken with too little water. The calcium and magnesium are taken separately. The latter serves chiefly to prevent constipation. Therefore he advises to take it once or twice a day, and more often if there is constipation. Usually the patient is advised to take a heaped teaspoonful of one or the other powder every two hours, in grave cases every hour. He does not need to stay in bed or restrict his diet much except with hemorrhages. All other patients may work and avoid only strong spices, strong liquor, fresh bread and too cold drinks. Persistence of subjective disturbances in spite of the treatment speaks against uncomplicated ulcers.

Zentralblatt für Chirurgie, Leipzig

52: 2113-2160 (Sept. 19) 1925

Indications for Rectotomy for Cancer. F. Mandl.—p. 2114.
Morphin by the Vein in Tabetic Crises, etc. F. Manhenke.—p. 2118.
Needle for Infusion. O. Ansinn.—p. 2119.
*Gangrene of Transverse Colon. A. Dzialoswynski.—p. 2120.
Calculi in the Appendix. O. Wassertrüdinger.—p. 2123.

Gangrene of Transverse Colon.—Dzialoswynski reports what he thinks is the first instance on record of recovery after resection of the entire gangrenous transverse colon. It had been preceded by four operations for peptic ulcer and their sequels, and three months were required to get the stumps of the bowel near enough together to suture the ileum to the descending colon.

52: 2161-2224 (Sept. 26) 1925

*Hygiene of the Operating Room. M. Kirschner.—p. 2162.
*Psoas Pain in Spondylitis. A. Gregory.—p. 2165.
Recuperation of Innervation in Skin Transplants. X. Polissadowa.—p. 2166.
Recurrence of Ulcer After Billroth I. R. Stohr.—p. 2168.
Properitoneal Hernia. H. Heinlein.—p. 2172.
A Cylinder Saw. A. Nussbaum.—p. 2176.
*Emergency Disinfection. Haas.—p. 2178.

Hygiene of the Operating Room.—Kirschner thinks that the surgeon and his aides suffer from too long standing, too much glare in the operating rooms, and from the overheating. He suggests that the surgeon might sit for certain interventions or certain phases of his activity. The white uniforms add to the glare, and the absence of shadows is a distinct drawback which might be prevented by having the light on a portable stand that could be moved around the room. The overheating and inhalation of anesthetic fumes he combats with small electric fans arranged to play on the operating personnel and the air above the table and at the washstands.

Pain in the Psoas with Spondylitis.—Gregory has noted that tenderness of the psoas may be the first manifestation of spondylitis. This is particularly likely in adults. The stiff attitude and the pains in the back or leg may be mistaken for lumbago or sciatica but palpation of the psoas will correct the diagnosis. The pain on pressure of the psoas spreads down the leg on that side. The most tender point is where the psoas passes the brim of the pelvis. In one of two cases described, the spinous processes were not tender to explain the pains in the back and left leg. Pain on deep palpation and pressure to the left of the spinous process of the first lumbar vertebra and pain on deep gliding pressure of the left psoas confirmed the diagnosis of spondylitis. Eighteen months later a gravity abscess in the left thigh, with sequesters, was cleared out, and in six months the man was clinically cured. There had been no curvature at any time.

Emergency Disinfection Without Gas, Fire or Hot Water.—Haas used three pans of alcohol. In one he placed sheets and towels, in the second his instruments, and the third he used for his hands. By this means he saved three women in grave eclampsia, all recovering smoothly after the cesarean section or decapsulation of the kidneys in the remote farmhouse.

Zentralblatt für Gynäkologie, Leipzig

49: 2049-2112 (Sept. 12) 1925

Increasing Virulence of Micro-Organisms. A. Reist.—p. 2050.
Medicinal Aids in Delivery. A. Calmann.—p. 2057.
*Evidence for Pregnancies of Subnormal Duration. Rissmann.—p. 2060.
Tubal Pregnancy or Perforation of the Uterus. K. Herold.—p. 2062.
Toxic Psychopathic Conditions in Pregnancy. S. A. Selitzky.—p. 2070.
Thyroid Treatment of Temporary Edema in the New-Born. Waltner.—p. 2073.

Evidence for Pregnancies of Subnormal Duration.—Rissmann emphasizes the medicolegal importance of this subject, and the undependability of the guiding points hitherto listed. He says that a fully developed child born from a pregnancy of 229 or 230 days has not been authentically established to date, as the methods of measurement and calculation are faulty. He urges the German Gynecologic Society to take the initiative in correcting the present lack of authoritative criteria.

49: 2113-2176 (Sept. 19) 1925

Starvation Treatment for Vomiting of Pregnancy. Determann.—p. 2117.
Halban's "Metastatic Hystero-Adenosis." R. Meyer.—p. 2121.
*Blood Cholesterol and Jaundice in the New-Born. R. Hornung.—p. 2124.
Mercuric Chlorid Poisoning Through the Vagina. Holtermann.—p. 2133.
"Specific Constituent's of Ergot." E. Rothlin.—p. 2137.
"Retention of Placenta Due to Myoma." O. Nebesky.—p. 2138.
*Treatment of Tears of the Cervix. H. Baumm.—p. 2141.
*Early Diagnosis of Pregnancy. A. Timofeew.—p. 2143.

Blood Cholesterol and Jaundice in the New-Born.—Hornung found in the new-born, with Simmel's method, an increased osmotic resistance of the erythrocytes. This was especially pronounced in jaundice. He believes that this testifies against a hemolytic origin of the jaundice. The blood cholesterol was low in almost every new-born child, and remained low longer in the infants with jaundice than in the others.

Treatment of Tears of the Cervix.—Baumm did not find a single instance of a profusely bleeding laceration of the cervix among 7,551 cases of spontaneous delivery. A slight tear does not need to be sutured and large tears should be sutured only in the clinic, except when Henkel's compression of the parametria is used.

Early Diagnosis of Pregnancy.—Timofeew applied Dienst's method (estimation of antithrombin) with good results: Negative findings excluded pregnancy with 90 per cent. of probability.

Časopis lékařů českých, Prague

64: 1321-1356 (Sept. 12) 1925

*Chronic Nephritis with Tuberculosis of Suprarenals. Ortynský.—p. 1321.
Periarterial Sympathectomy. E. Polák.—p. 1328.
Actinomycosis of Tongue. V. Hlaváček.—p. 1335.
Cause of Death of Composer Smetana. A. Heveroch.—p. 1338.

Chronic Nephritis with Tuberculosis of Suprarenals.—Ortynský describes a case of chronic nephritis associated with an extensive destruction of the suprarenals by tuberculosis, and with tuberculosis of the genito-urinary apparatus. The heart was not enlarged, the systolic pressure only 155 mm. mercury, and the pigmentation slight. He points to Bauer's theory on the change of retained nitrogenous products into epinephrin. He obtained a positive Meirowski reaction (pigmentation) with pieces of skin from patients with contracted kidneys. The reaction was negative in lipoid nephrosis.

Prophylaktitcheskaia Medicina, Kharkov

4: 1-192 (Aug.) 1925. Partial Index

*Action of Alkaloids on Antibody Production. P. Butiagin.—p. 11.

Influence of Drugs on Formation of Agglutinins.—Butiagin, who made his experiments on rabbits with various alkaloids, says that he is not aware of any previous experiments in this line with eserin, cocain or pituitary extract. He used a typhoid bacillus culture for the antigen. Repeated injections of pilocarpin and antigen increased the formation of agglutinins by five or sixfold. Eserin, atropin and pituitary extract appeared to be without effect. Morphin inhibited the formation of agglutinins; as also repeated injections of epinephrin. With cocain, the amount of agglutinins was augmented twelve or fifteenfold.

Russkaia Klinika, Moscow

3: 483-672 (April) 1925. Partial Index

*Leukocytosis in Man and Dog. A. Voronoff and J. Riskin.—p. 483.
*The Leukocyte Picture in Various Diseases. N. Zolotareva.—p. 513.
Drug Treatment of Apepsia. V. Vinogradoff et al.—p. 526.
Palpation of Gastro-Intestinal Tract. J. Flekel.—p. 556.
Case of Tabetic Vertebral Osteo-Arthropathy. A. Prokin.—p. 602.
*Carcinoid of the Appendix. V. Prebsting.—p. 606.
Improved Plastic Technic for Correction of Prolapse of Uterus. N. Markoff.—p. 620.

Digestive Leukocytosis as a Conditional Reflex.—Voronoff and Riskin's research was made on five healthy men and ten dogs during fasting and absolute rest. The number of leukocytes varied during the day, the changes being different in different persons. The number increased at the usual meal hour, thus showing a "habitual" leukocytosis. An exaggerated leukocytosis appeared in dogs under certain external stimuli associated with sham feeding. This leukocytosis was thus proved to be the result of a conditional reflex. The alleged digestive leukocytosis is evidently not a constant reaction from absorption of products of digestion and secretion, but is a conditional reflex reaction, in this same way.

The Leukocyte Picture in Different Affections.—Zolotareva made 610 examinations of blood from 406 patients, using Schilling's simplification of the Arneth classification, and records the findings.

Four Cases of Carcinoid of the Appendix.—Prebsting describes four cases in patients, aged from 17 to 34. On microscopic examination the tumors showed glandlike formations, confirming the embryonal origin of carcinoid, and the connection with the entodermal epithelium of Lieberkühn's glands.

Nederlandsch Maandschr. v. Geneesk., Amsterdam

13: 141-247, 1925

*The Bacteriophage in Children's Pyelitis. F. N. Sickenga.—p. 141.

The Bacteriophage in Children's Pyelitis.—Sickenga found a bacteriophage constantly in the urine in four of twenty-six cases of colon bacillus pyelitis in children from 5 weeks to 3½ years old. The bacteriophage was found occasionally in twelve others, but not at all in ten others. The course of the pyelitis did not seem to be modified by the presence or absence of the bacteriophage, and none was ever found in urine or feces that was strong enough for complete lysis of the corresponding bacillus in bouillon culture. An autogenous vaccine had little if any influence on the bacteriophage findings, but the presence of the bacteriophage seemed to detract from the action of the vaccine. Sodium citrate was the only drug that seemed to modify the course of the disease, and this only in the acute phase. The article is a complete study of the subject, with illustrations.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1085-1192 (Sept. 5) 1925

*Bacteriophage Action in Blood. L. K. Wolff.—p. 1088.
*Monosymptomatic Pains in the Legs. Wortman.—p. 1091.
Estimating the Sugar Content of Blood. Cohen Tervaert.—p. 1110.
Miliary Tuberculosis of Lungs: Recovery H. van Wely.—p. 1113.
Is Gastrophilus Responsible for Creeping Disease? W. F. Schaefer.—p. 1115.
History of Treatment of the Sick by Churchmen. A. J. van der Weijde.—p. 1118.
Folklore Treatment of Enuresis. C. Bakker.—p. 1123.
Hippocrates' Visit to Democritus. J. B. van Gils.—p. 1132.

Bacteriophage in Blood.—Wolff's research has demonstrated that addition of blood or serum to bacteriophage cultures does not impede the bacteriophage action.

Monosymptomatic Intense Pains in the Legs.—In two of Wortman's three cases, the pains in the legs were finally traced to a tumor in the pituitary or spinal cord. The pains in the third case suggested acute polyarticular rheumatism except the onset with chills, the involvement of three large joints with the connected muscles, the continuous fever, and the lack of benefit from the salicylates. The assumption, by exclusion, of the gonococcal nature of the acute infection was confirmed by discovery that the husband had recently been operated on for urethral stenosis. The operation may have roused latent gonococci to virulence. Anything in the line of an acute articular affection in women should suggest the gonococcus unless definitely explained otherwise.

Finska Läkaresällskapets Handlingar, Helsingfors

67: 691-761 (Aug.) 1925

*Cytology of Pyuria. F. Stenius.—p. 691.
Operative Invagination Cases. G. Snellman.—p. 711.
Movement of Endolymph in Semicircular Canals. F. Leiri.—p. 729.
Tuberculosis in the Curriculum. A. v. Bonsdorff.—p. 734.

Differential Diagnosis of Pyuria.—Stenius confirmed on fifty patients the dependability of Colombino's sign of tuberculosis, namely, the characteristic irregular outlines of the leukocytes in the sediment. Nearly all the leukocytes were thus deformed in all the twenty-two pure tuberculous cases, while they were smoothly round in twenty-two streptococcus, staphylococcus or colon bacillus cases. The cytology of the urine thus throws light on the etiology.

Hospitalstidende, Copenhagen

68: 721-744 (Aug. 6) 1925

*Microtest for Protein in Serum. S. Holm and H. Tómasson.—p. 721.
*Pathogenesis of Myopia. E. Holm.—p. 729.

Microtest for Protein in Serum.—Holm and Tómasson dilute 0.1 c.c. of serum with Ringer's solution, and pipet nitric acid to the bottom of the glass. A white precipitate at the line of junction always paralleled positive findings with other tests. By varying the dilution, it is possible to estimate the protein content quantitatively. In twenty-three normal persons the average range was from 5.55 to 8.77 per cent.

Etiology of Myopia.—Holm ascribes to the effort for accommodation in near reading, during the period of active growth, the development of myopia in persons congenitally predisposed as a recessive hereditary condition. Myopia is common among printers, he has noticed, while it is rare in watchmakers. Printers have to do a great deal of reading while watchmakers use a magnifying glass for their work. They thus are saved the strain of accommodation, although their work requires much bending over, while printers' copy is placed high before them.

Hygiea, Stockholm

87: 657-688 (Sept. 15) 1925

*Total Heart Block with Full Earning Capacity. E. Zander.—p. 657.
*Myeloma with Uremia. B. Frykberg.—p. 667. Begun, p. 618.

Unimpaired Earning Capacity with Total Heart Block.—Zander examined this patient first, as a boy, aged 7. His bradycardia had attracted attention and the heart block was total. At 20, the young man had passed through several infectious diseases, but the general condition had kept constantly good, and Zander does not regard the prognosis as grave. There is no progressive tendency, and the heart seems able to cope with any strain. This was tested with graduated exertion.

Case of Myeloma with Uremia.—Frykberg's patient was a man, aged 69, who twenty-two years before had been successfully treated for chronic nephritis. With regulation of the diet the urine was kept free from sugar and albumin until 1924, when symptoms of nephrosis with uremia developed accompanying symptoms explained by a myeloma in the first lumbar vertebra. Bence-Jones albumin was present in the urine, with anemia of a special type: 1,600,000 erythrocyte and hemoglobin 32 per cent.; 48 per cent. neutrophil leukocytes; 37 per cent. small lymphocytes, and from 4 to 6 per cent myelocytes—the total leukocyte figure being 4,500 to 8,600. Th kidneys showed proliferation of connective tissue and hyalin glomeruli. The multiple myeloma had invaded ribs, kidney and liver as well as the spine. The case seems to confirr the formation of Bence-Jones albumin in the kidneys, anc that the process is of the nephrosis type. The kidneys reac in a specific manner to the specific toxin.

Upsala Läkareförenings Förhandlingar, Upsala

30: 319-480 (Sept. 16) 1925

*Human Thoracopagic Monsters. F. Ysander.—p. 319.
*The Endocrine System in the Human Fetus. J. A. Hammar.—p. 375.

Thoracopagic Monsters.—Ysander's study of human diploterata is devoted to the thoracopagic type and is profusely illustrated, with eleven double plates. The youngest of the seven specimens examined measured only 14 mm.; most of the cases published to date have been full term deliveries. The article is in English. The importance of teratology for the study of embryology in general is emphasized.

The Endocrine System from Embryologic Standpoint.—Hammar discusses the question as to when the first signs of endocrine activity become apparent in the fetus. The article is in French, with twenty photomicrographs.

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CHRONIC HUMAN AMEBIASIS

A REVIEW OF THE DIAGNOSIS AND TREATMENT ON THE BASIS OF ENCYSTMENT IN THE LIVER AREA

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It is a common statement in or inference from the literature of amebiasis that encystment of *Endameba dysenteriae* occurs only in the colon. It is also generally supposed that the cysts of *E. dysenteriae* are not vulnerable to emetin hydrochlorid. During six years' experience in the diagnosis and treatment of human amebiasis, and especially in the last three and a half years in observing and treating those persons with amebiasis who have at the same time chronic hypertrophic arthritis, clinical features have appeared that do not seem susceptible of satisfactory explanation, if one is restricted to the concept that encystment of the amebas is confined to the colon alone. In chronic amebiasis, one is often struck by the appearance of partial improvement under specific therapy, followed by a neutral period, and then often by retrogression. Retrogression is quite often associated with the advent of colds, influenza, chilling, etc.

On attempting to visualize the disease process, the following questions arise: Does partial improvement or incomplete recovery mean that the patient's illness has other factors in its causation, in addition to the amebiasis, or does it mean that something occurs in the life cycle of the ameba which can explain the clinical behavior? The first question can be answered in the negative in numerous instances, by careful examination of the patient and elimination of possible factors other than amebiasis. The second question may possibly be answered in time with certainty in the affirmative. It is interesting that these retrogressions partake of the characteristics of the original syndrome and often appear out of proportion to the severity of the intercurrent infection. One is then led to the conception of depression of the host's resistance by the intercurrent cold or other factor, and a prompt lighting up of the original amebic infection, which may have been encysted, and which has not been actually eradicated. That is, on analysis, one is led to conclude on clinical evidence that arrested improvement during the course of specific therapy and the initiation of a retrogression that is typical of the original syndrome quite possibly mean that specific treatment was successful in eradicating only the motile phase, but not the hardy phase of the infection; i. e., that in which encystment may have occurred.

In this connection one recalls that cysts of *E. dysenteriae* are invulnerable to emetin hydrochlorid. Are they possibly also resistant in the presence of emetin bismuth iodid? Whatever is the ultimate answer to this question, one can arrive, by clinical reasoning, at a concept of encystment occurring in the host, outside of the feces in the colon. This encystment may be conceived as coinciding in time with, or perhaps persisting throughout, the neutral period so often seen in the course of treatment of human amebiasis by specific therapy, with emetin in some form or other. The lull of arrested development in the patient continues until circumstances adverse to the ameba are removed, and until circumstances adverse to the host arise. That is, the neutral period occurs when the patient's intolerance to specific therapy has been reached, and one must desist out of regard for safety to merge into actual retrogression on the advent of depressing factors, such as colds, influenza, worry, fatigue, chilling and constipation.

In analyzing cases of human amebiasis, it is remarkable how often a mild colitis is found as a characteristic sign. In a list of several hundred cases extending over a period of several years, only one case has been found in which there was no colitis demonstrable by sigmoidoscopy. In this instance there may have been a mild typhlitis. Bearing in mind this mild colitis, and observing that a high percentage of cases also showed apparent enlargement of the right lobe of the liver with a sensitive liver edge, the medical author was forced to the concept of early mild hepatitis occuring in the majority of cases. This view, of course, has had added support in the protozoological findings of *Endameba dysenteriae* in the invaded capillaries of the colon.[1]

As shown in Figures 1 and 2, from a section of the colon adjacent to an amebic ulcer in a fatal case of human amebiasis, one finds, outside of the muscularis in the capillaries and small blood vessels of the serosa, abundant evidence that the amebas have entered the blood stream and are thus in a position to find their way in the hepatic portal stream to the liver. The hematogenic mode of distribution of amebas from colonic infections is thus provided for by this invasion of the blood stream into other organs of the body, such as bone, lymph glands and skin.

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[1] Kofoid, C. A.; Boyers, L. M., and Swezy, Olive: Systemic Infections by Endameba Dysenteriae, Proceedings of the International Conference on Health Problems in Tropical America, held at Kingston, Jamaica, B. W. I., July 22 to Aug. 1, 1924, by invitation of the Medical Department, United Fruit Company (Boston, United Fruit Company), pp. 381-399.

PREVIOUS CONCEPTS

To recapitulate, the sequence of concepts has been as follows:

The cysts of *E. dysenteriae* are not vulnerable to emetin hydrochlorid. Although this statement may not be absolutely true, the relative resistance of these cysts is so high that no case of amebiasis can be completely eradicated by the use of emetin hydrochlorid alone. This is indicated in the experimental results of the British Medical Research Council.

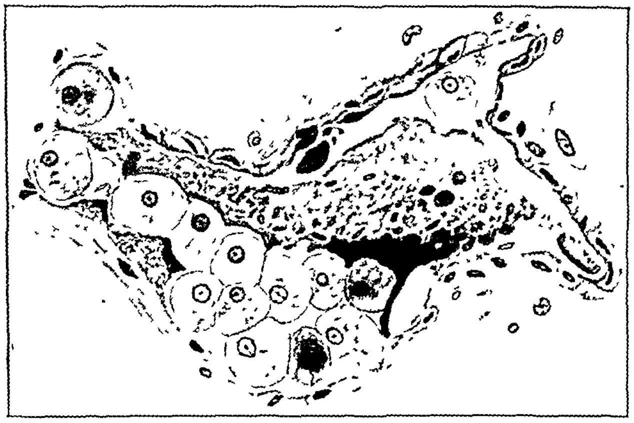

Fig 1.—Cross section of small vein in the wall of the colon immediately outside the muscularis near the margin of an amebic ulcer, showing fifteen amebas in a single section; × 460; after Kofoid (Amoeba and Man, University of California Chronicle, April and July, 1923, Plate 4, Figure 42).

In the treatment of chronic amebiasis, one does get improvement by specific therapy, but in many cases, especially in those of chronic hypertrophic arthritis and in those with apparent involvement of the liver area, this improvement does not lead to complete recovery. The case is oftener arrested, the patient entering a neutral phase in which there is neither progression nor retrogression. In watching numbers of these cases, one is constantly tantalized by this more or less neutral period, and is led irresistibly to the concept that it coincides with the existence of encysted stages of the parasite, with only slight returns to activity. Since the medical author has come to treat amebiasis entirely on the basis of the patient's tolerance for specific therapy, and since the neutral periods may have occurred after quite intensive treatment—the actual reaching of the limit of the patient's tolerance—one is again led to the concept of encystment of the parasite occurring after a period of treatment and bringing to a halt the process of eradication. Whether or not this is a protective reaction on the part of the parasite is not known. As one observes these neutral periods, little of moment is seen in the course of the disease until the patient is subjected to some assault, such as chilling, fatigue, worry, colds or influenza. Then one usually sees an end to the neutral period and the beginning of actual retrogression. Apparently excystment is under way, and the original syndrome appears with the lighting up of the disease process. The same rise and fall can be followed in the colitis and the hepatitis, each tissue apparently telling the same story of partial eradication, encystment, excystment, and renewed activity of the infection.

This train of thought was followed for several years before added observation brought to light cases presenting not only mild chronic appendicitis and typhlitis, but, as often observed at celiotomy, perityphlitis, pericolitis and pericholecystitis, occurring concurrently with clinical amebiasis with proved laboratory confirmation of the diagnosis.

These observations were made during the use of surgery, combined with the clinical concept of general mild hepatitis, and the reasoning of encystment and specific therapy heretofore outlined led the medical author to take two steps. First, some ten or twelve months ago a statement was made to the protozoologists that encystment must occur outside the colon, if one is to account rationally for the clinical behavior of cases. Secondly, some six months ago routine duodenal drainage was instituted, to secure a check on the liver area, and examinations paralleling fecal examinations were made; both of these procedures took place under the stimulation of bile salts and salines by mouth.

PRESENT CONCEPT

Before proceeding further with our revision, it may be helpful to indicate our present concept of clinical amebiasis. It has been possible for the last two years to say that there is a definite disease entity that can be recognized by clinical means as chronic amebiasis. According to our own records, this is so definite that fully 95 per cent. of cases can be diagnosed clinically, before laboratory confirmation is obtained.

The process of arriving at a clinical diagnosis of amebiasis involves a complete history, taken with more than usual care, because of the great need of particular attention being paid to vague symptoms and their sequence. It is hardly possible to be too careful in eliciting this history. All the minor and major illnesses of the individual, as well as his physical and mental peculiarities, are recorded against a background of heredity and environment. The question of environment is elaborated to make a record of the individual's residence during life, as to state or country. Certain well known areas containing endemic foci contribute largely to the chance of infection with protozoan parasites. The fruitful way of dealing with these cases is to attack them with a desire to find every factor and every disease process involved in the case whether or

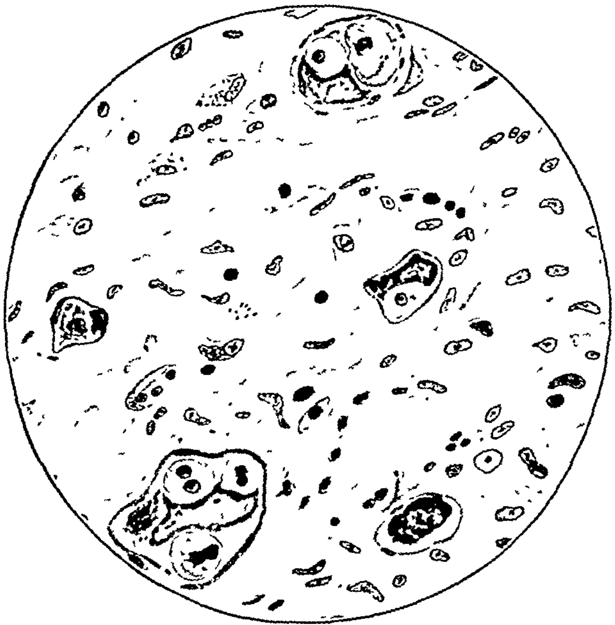

Fig 2.—From the same section as in Figure 1, showing amebas in several small vessels; × 380.

not it interacts with the amebiasis. Amebic infection is of long duration in the host, and the way to arrive at a just estimate of its prevalence and its importance to human welfare is to seek to define accurately the limits of its invasion, both in human tissue and in the social body.

Nearly all individuals of the white race seem to be susceptible to chronic amebiasis. The two sexes seem equally vulnerable, although certain tissues are possibly more easily invaded in one sex than in the other. In the Caucasian race no sufficient observation has been made to indicate increased susceptibility of blond over brunette, or vice versa. There is a well defined feeling, however, that some of the dark peoples, such as the negro, the East Indian, the Chinese, the Japanese and the Filipino, show more tolerance of *E. dysenteriae* in the bowel than does the white man. However, this is merely an impression.[2]

In this connection, one is reminded of the question of carriers. Over a period of years, constant search has been made for a true carrier, but as yet only one individual has been found by the medical author in more than 500 cases who showed no visible tissue damage attributable to *E. dysenteriae*. The behavior of cases in the temperate zone suggests that *E. dysenteriae* meets with a number of adverse conditions that help to create a subtle picture of chronicity. Whether this tendency to chronicity in large numbers of persons in the temperature zone means an actual relative immunity is not known. One is only able to say that, to date, but one individual has been found with no visible tissue damage, and he may have had considerable damage in areas not open to the eye. This particular individual, it may be worth noting, died later of arteriosclerosis.

SYMPTOMS

In symptomatology, one of the salient facts is that persons with amebiasis commonly complain of fatigability. They go to bed tired, and arise in the morning tired; they are tired whether they work or rest; many of them are so tired that they are in actual anguish; others merely say they have lost their "pep." Very commonly associated with fatigability is constipation, or constipation interspersed with evanescent diarrheas. Occasionally one will elicit the passing of considerable quantities of mucus or blood. A normal man knows hunger and the desire for evacuation; otherwise his bowel does not obtrude on his consciousness. In amebiasis the patient often has no actual pain. On the other hand, he is not comfortable in the abdominal region. He is, as we say, "bowel conscious." He may have considerable flatulence. He may or may not complain of definite soreness in the right lower quadrant, in the right upper quadrant, or in the region of the splenic flexure. He may complain of neuritic symptoms, pain along the course of some particular nerve or nerves. He may complain of basal headache, or of pain and aching in the region of joints. He may have considerable digestive disturbance, referable to the upper abdomen, that leads to the clinical suspicion of hyperacidity, hypo-acidity, gastric and duodenal ulcers, chronic pancreatitis, chronic cholecystitis, chronic duodenitis or chronic hepatitis. He may complain of cough and expectoration, with bloody sputum. He may complain of rapid pulse, and one may see mild tachycardias. He may complain of much nervousness, and one may find in him symptoms of a subacute or chronic thyroiditis. He may complain of defective vision, and one may find greatly impaired vision with or without definite iritis. Some may complain of disabling loss of memory, while others show various neuroses. One may find also the grosser lesions of liver abscess, lung abscess, brain abscess, skin ulcers, etc. The matter can be summed up by saying that in chronic amebiasis we are dealing with a disease entity as protean as syphilis.

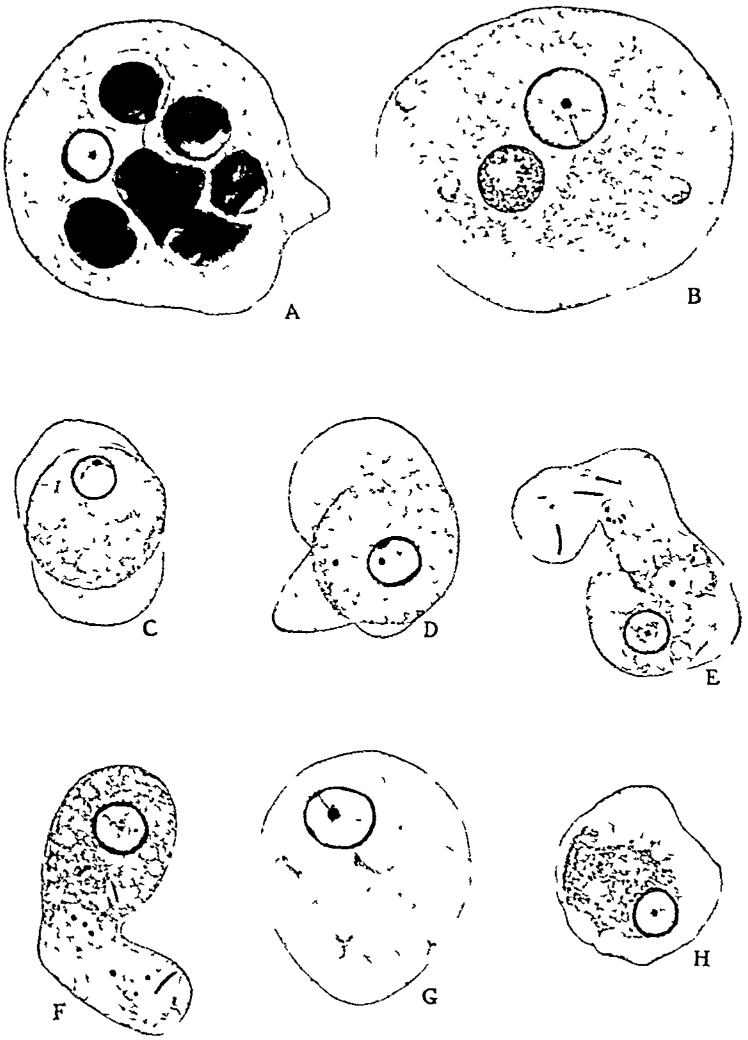

Fig 3—Motile Endamebae dysenteriae from the detritus of duodenal drainage: *A, B, E* and *F* are from Flask 2, and *C, D, G* and *H* from Flask 4 *A* contains partially digested leukocytes, and *B* a red blood corpuscle Structures resembling bacteria appear in *E* and *F*, slightly reduced from a drawing with a magnification of 2,500 diameters

In discussing with the patient his past history, it is important to note such quoted diagnoses as nervous breakdown, neurasthenia, incipient tuberculosis, tuberculosis without the actual finding of tubercle bacilli, constipation, diarrhea, the passing of mucus, the passing of blood, hemorrhoids without the actual demonstration of hemorrhoids, neuritis or chronic rheumatism.

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[2] Since the foregoing was written, the authors, through the courtesy of the United Fruit Company, have had the opportunity to observe the incidence and severity of amebiasis in both acute and chronic phases among negroes and varying race mixtures among the coastal peoples at Santa Marta, Colombia and also at Panama We are less impressed than we formerly were as to the existence of a difference in tolerance to human amebiasis between the Caucasian and the darker races, at least so far as this pertains to these negroid and Indian admixtures

Human amebiasis is a definite disease entity, protean in character as is syphilis, undramatic in behavior, subtle in its onset, and definitely nonbacterial in type. We have been highly trained in thinking from the bacterial point of view since the days of Pasteur, and, on the whole, poorly trained in thinking from the point of view of protozoan infection. One commonly associates with the bacterial point of view such findings as fever, redness, swelling, acute pain, and more or less characteristic blood and urinary pictures. From the protozoan point of view, the very absence of these old guides may be highly significant. It is suggestive to recall that the bacteria are minute plant forms, and are often intolerantly regarded by human tissue cells. Protozoa are minute animal forms, and are often tolerantly regarded by human tissues for considerable periods of time. From this point of view one comes to realize that when bacterial infection is not demonstrable, one is not necessarily justified in a diagnosis of functional disturbance, or of normality, but very often may be dealing with a chronic amebic infection.

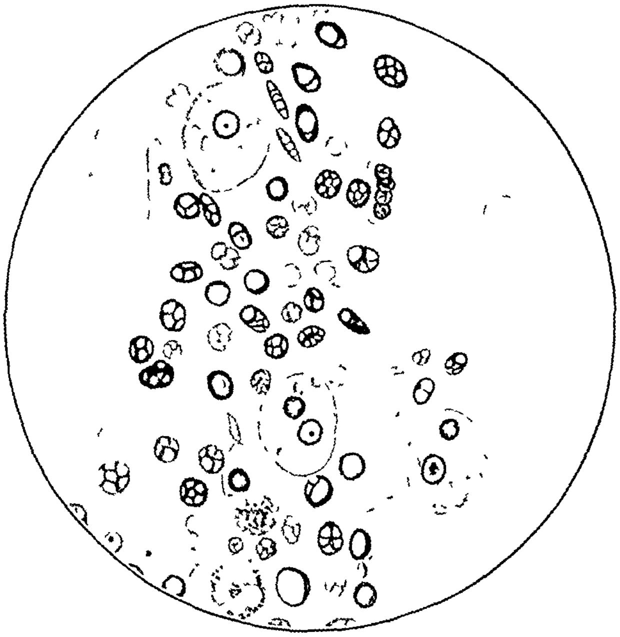

Fig 4—A shred of mucus from duodenal drainage with contents and three recognizable amebas in situ in the mucus and remnants (?) of two others; reduced from a drawing with a magnification of 730 diameters

It is worth a strenuous effort to try to eliminate other possible factors before arriving at a clinical diagnosis of amebiasis. The dearth of the usual findings to account for the patient's symptoms should make one suspicious of an amebic infection, especially if the symptoms are vague in character. One should not be content with the ready estimate that there is nothing really wrong physically, or that the disturbance is "functional." Such relatively insignificant findings as sensitiveness in the region of the cecum, a slightly enlarged right lobe of the liver with sensitive liver edge, sensitive splenic flexure, vague nerve and joint pains, and a general air of depression, may in the end be accounted for by the demonstration of chronic intestinal infection. The physician needs to become very sensitive to the picture of toxemia, no matter through what tissue or organ it presents itself.

Sigmoidoscopy in chronic amebiasis is necessary. Patients commonly believe that bleeding from the anus is due to hemorrhoids; this cannot be demonstrated on examination, the bleeding having been due to a mild colitis. One of the most valuable findings by sigmoidoscopy is this chronic colitis, which often is mild in grade and is characterized by the appearance in the mucosa of dilated vessels, pinpoint hemorrhagic areas, larger hemorrhagic areas, often granular mucosa, and occasionally free blood and abnormal amounts of mucus. It is surprising how often this mild colitis is interpreted as of no consequence, or overlooked entirely. In reality, it may be of the first significance, especially when considered in relation to symptomatology, past history, physical findings and the occurrence of cysts of *E. dysenteriae* detected by stool examination.

When identification of *Endameba dysenteriae* by cytologic criteria of the encysted stage was substituted for the older method of identification by the motile phase, a much more reliable method came into being. Further improvement in diagnostic methods ensued, when serial examinations of the feces were substituted for haphazard examination. Salines have proved useful in bringing to light amebic cysts or motile forms that might otherwise escape detection, but, with the routine use of bile salts as a cholagogue, an even better method has been substituted as a matter of routine. In fact, the use of bile salts has proved so effective in making demonstrable obscure infections with amebas that it has aroused suspicion that large numbers of amebas may be found commonly in the liver area, in chronic amebiasis, and this suspicion has led to our observations on the size of the liver, the sensitiveness of the liver edge and the frequency of accompanying gallbladder symptoms. Certainly in the light of our present knowledge, no fecal examination or duodenal examination is complete without the use of bile salts, with or without a saline.

POSSIBILITY OF CURE

For many years, tried and competent workers in the therapy of parasitic infections have been divided between two points of view, one group considering amebiasis insusceptible of cure; the other group considering it amenable to modern methods of treatment. This division in point of view is a challenge, and arouses curiosity as to why one often sees incomplete eradication of amebiasis.

Considerable light seems to have been thrown on this problem of incomplete eradication by our results on duodenal drainage. Amebas, both motile and encysted, have been found by us in the liver area. By analogy the question is raised as to whether or not they may also occur in other areas, such as about the joints and wherever either the intestinal stream or the circulatory stream tends to slow down.

In this connection it is well to bear in mind that encystment in protozoa generally is often regarded as a protective procedure providing for their resistance to desiccative or other adverse conditions. From this point of view, one would not predict encystment in the liver region, or elsewhere in the tissues. There is, however, another point of view; namely, that encystment is related to the metabolism of the protozoan. It often occurs among free-living protozoa in cultures in which food is abundant and no adverse conditions appear to be present. There is a possibility that encystment may follow a period of abundant feeding and thus have a metabolic aspect, or that it may be a resultant of the interaction of some factor in the life cycle of the protozoan. There is as yet no satisfactory evidence that sexual reproduction occurs in any ameba, certainly not in any ameba parasitic in man, or that encystment follows syngamy. In any event there is no sound biologic evidence that encystment is primarily a protective device or that it might not occur in the case of *Endameba dysenteriae* in loci in the human host other than the lumen of the colon.

Whenever they do occur, they may not be entirely eradicated, perhaps because the encysted stage is hardy and possibly invulnerable to our present medicaments, and perhaps because one cannot quickly enough reach all parasites with a dose of sufficient concentration to kill. As in the old problem of syphilis, one may be tempted to search for a drug that will permit of a sterilizing dose. Perhaps, as in syphilis, such a drug will not be found, and one must, perforce, utilize his whole armamentarium, both medically and surgically, realizing that no one medicament is adequate and that only by the greatest resourcefulness can the actual cure of amebiasis be achieved.

TREATMENT

In the present position of the diagnosis and treatment of chronic amebiasis, patients should be impressed with the fact that treatment partakes of the nature of a campaign and not of a "cure," that is, patients with chronic amebiasis can be definitely bettered in health because of treatment, but the word "cure" carries with it too many implied promises, and may well be barred from the language of those who deal with amebiasis, for the present at least. It is wiser to tell patients with chronic amebiasis that, no matter how mild the infection appears, observation and treatment, including periodic examination, may easily occupy even as much as two years before the question of cure can be considered. Actual cure may be achieved in less time, but it should not be pronounced by the physician, without long and careful checking of both feces and duodenal contents. In the more severe cases, such as those with accompanying chronic hypertrophic arthritis, a combination of treatment, observation and checking may easily extend over a period of from three to five years. It may be well to note here that many cases of chronic hypertrophic arthritis do not appear to have so simple a causation as amebiasis alone. In many of these cases the factors are complex, including not only amebiasis, but also bacterial infections, seriously impaired metabolism, etc.

Duodenal drainage is done in the following manner:

The patient appears at the hospital or convalescent home in the morning without breakfast. The ordinary duodenal tube of the Rehfuss type is passed, and the patient is placed on the couch on his right side. A group of four flasks is made ready. Into Flasks 2 and 4 is put approximately 50 c.c. of Bouin's solution. The end of the duodenal tube is put into Flask 1 and left there until fluid begins to siphon away. When the fluid in Flask 1 begins to show a tinge of bile, the tube is passed into Flask 2, and the bile-stained fluid is allowed to run into the Bouin's solution, which acts as a fixative for the cellular material. When this drainage has continued for the matter of an hour, 125 c.c. of a warm, nearly saturated solution of magnesium sulphate is passed through the tube with the aid of a glass syringe. As much as possible of the magnesium sulphate solution is thereafter withdrawn by suction. Then the end of the tube is passed into Flask 3 and allowed to drain until all the magnesium sulphate solution is passed and the dark cystic bile begins to flow. With the appearance of the dark cystic bile, the tube is inserted into Flask 4, and the material is again thrown into contact with the fixative. Frequently one will wish to use a fifth flask containing Bouin's solution, in which to collect the so-called hepatic bile. The collected material in the flask is then centrifugalized and sent to the laboratory, where it may be stained and studied directly in the sediment, or infiltrated with paraffin, sectioned, stained and then studied.

Since duodenal drainage has been instituted as a check, 120 drainages on a total of fifty patients have been done by us. The patients furnishing the drainages, with the two exceptions noted below, have had a clinical diagnosis of pathogenic amebiasis confirmed by laboratory diagnosis. As a rule, in this series, they have been selected for duodenal drainage because each one has shown some refractory feature, either during or after specific therapy. Eleven of these persons, that is, eleven of the fifty, show positive duodenal findings of *E. dysenteriae,* either motile or encysted, or both, either in Flask 2, Flask 4, or both, and amebas have been found in one case in the duodenal drainage with six negative stools examined serially.

An analysis of these cases shows symptoms grouped as follows: one case with eye and colon symptoms predominating; thirty cases with stomach, liver, gallbladder and colon symptoms predominating; fourteen cases with joint, nerve and colon symptoms predominating. The remaining six cases include a group in which infections of *Craigia hominis* and *Councilmania lafleuri* had been found, but no *Endameba dysenteriae* to date.

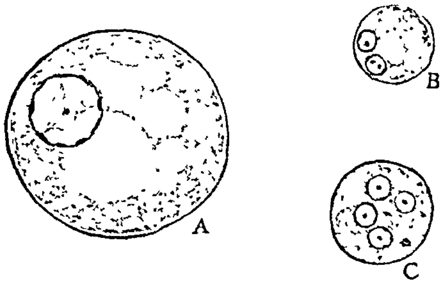

Fig. 5.—Cysts of Endameba dysenteriae from contents of Flask 4 in Case 50, with one, two and four nuclei, respectively; slightly reduced from a drawing with a magnification of 2,500 diameters.

TYPICAL CASES

It will be of interest to summarize very briefly our experience with typical cases out of this group.

Case 1, referred to the medical member by Dr. Milton Shutes of Oakland, presented a most interesting symptom complex. The chief complaint was due to a chronic iritis with cataract.[3] The colon showed a high degree of inflammation, the visible mucosa being almost beefy in color. No free blood was seen. Since treatment, no further attacks of iritis have occurred, and the mucosa is much improved, the color being nearly normal. Two duodenal checks after treatment yielded negative results.

Case 6 illustrated the picture of gallbladder involvement. This patient came in complaining of a "kink in the back" that had endured two weeks, much discomfort in the region of the stomach, and much flatulence. His symptoms were worse from two to three hours after eating, and he complained definitely of weakness. Roentgen-ray observation showed a pathologic gallbladder, probable cholelithiasis, a chronic pathologic appendix, with adhesions, signs of colitis, and possible diverticula of the ascending colon. Specific therapy caused the disappearance of symptoms within four weeks, though an attack of influenza kept the patient uncomfortable for another month. He is at work and has had no further symptoms referable to bowel, appendix or gallbladder to date.

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[3] Mills, L.: Amebic Iritis Occurring in the Course of Non-Dysenteric Amebiasis, Arch. Ophth. **52**: 525-545 (Nov.) 1923.

Case 22 illustrates disturbance in the liver area, with epileptiform seizures. When this young matron came under observation, she was suffering from great irritability and from two to four attacks a week. These attacks were preceded by a definite aura, and a violent headache accompanied by vomiting, both preceding and succeeding the attacks. Following specific therapy, which was given in three different courses, she has been free from these attacks for six months. Duodenal drainage itself has kept her improving. It has been repeated on the slightest hint of headache or aura, at lengthening intervals, until now the schedule indicates drainage every ten days. Recently *E. dysenteriae* was found in Flask 4 in concentrated cystic bile.

Case 10 was that of a person with chronic hypertrophic arthritis. This patient, a physician, suffered much and had to accept limited activity because of pain and increasing weakness, associated with a "toxic feeling." Under specific therapy, the joints receded in size and became more supple. Pain was much decreased. The patient commented on feeling better than in several years, having lost a sense of depression. On checking with duodenal drainage, *E. dysenteriae* was found in Flask 4, and vigorous treatment was again instituted.

Case 34 was another chronic hypertrophic arthritis. This patient had been confined to bed and wheel chair for about three years She had much pain and disability, with atrophy of the joint structures. Roentgenray observation, however, showed thin disks of cartilage persisting in the joints. On specific treatment, she lost much of her pain, found her joints more supple, and has recently been able to stand and to take two steps, the first in more than three years. Duodenal drainage has recently shown *E. dysenteriae* in Flask 2.

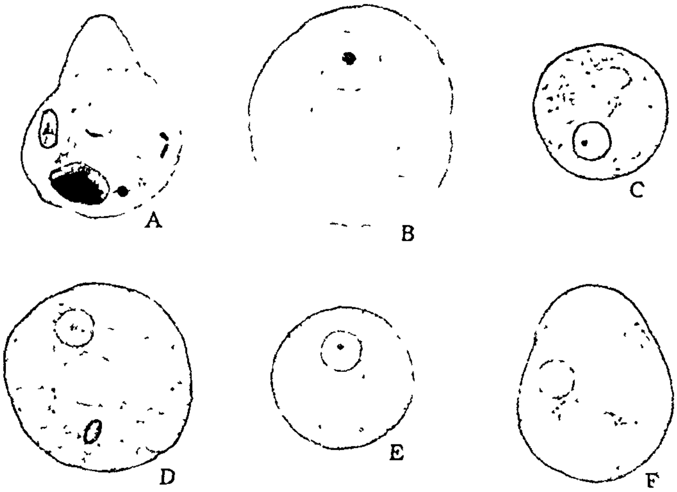

Fig. 6—Moribund Endameba dysenteriae from duodenal drainage with signs of disorganization, from four different patients *A*, *B* and *E* are from Flask 2, and *C*, *D* and *F* from Flask 4; slightly reduced from a drawing with a magnification of 2,500 diameters.

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The motile amebas have been preserved with pseudopodia still extended (Fig. 3 *C*, *D*, *E*, *F*), with ingested leukocytes (Fig. 3 *A*) and erythrocytes (Fig. 3 *B*) in their cytoplasm, and with bacteria (Fig. 3 *E* and *F*) in vacuoles. These evidences are indicative of the presence of a normal motile feeding phase in the region from which the duodenal drainage is derived.

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The presence of the moribund amebas in the duodenal drainage may, in the light of our experiments, indicate a progressively destructive action of the bile on them. It may thus be that the gallbladder region in a case of amebic hepatitis is one into which the contents of amebic cytoplasm are released to a greater or less extent, whenever the amebas escape from the liver by way of the biliary system.

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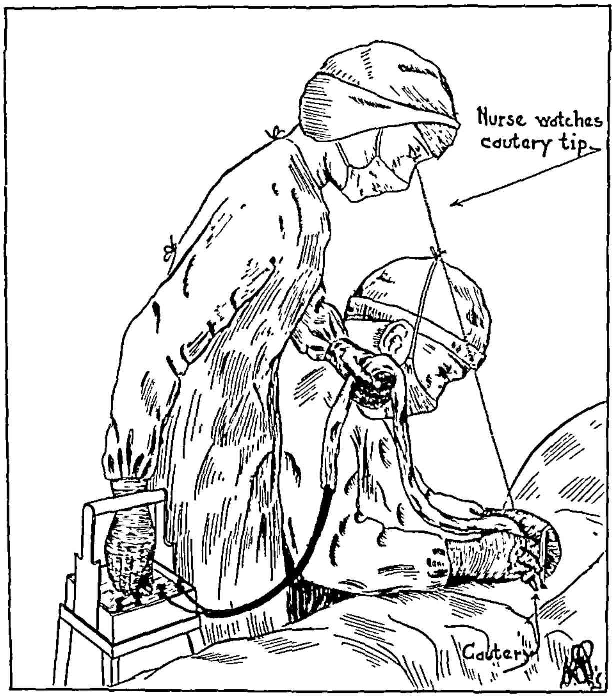

Fig. 1.—The nurse standing on a tall stool, watches the cautery tip in the hand of the operator, and controls the heat by means of the rheostat mounted on a stand.

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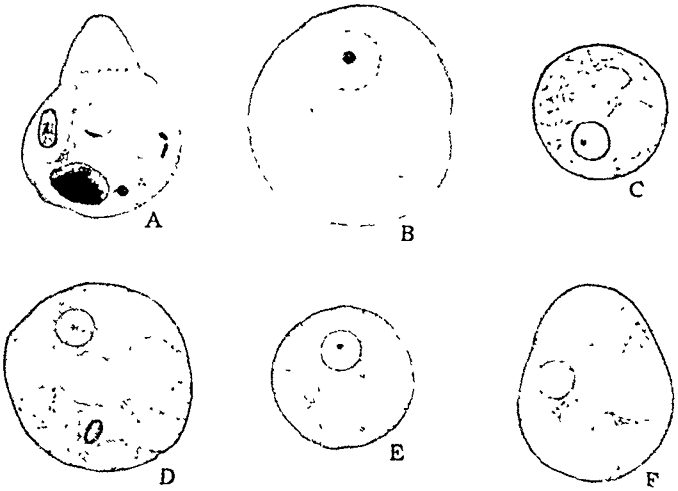

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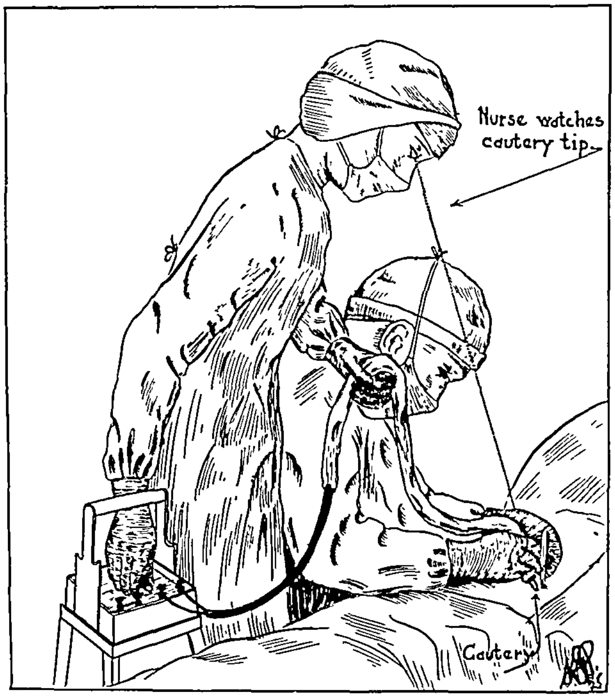

Fig. 1.—The nurse standing on a tall stool, watches the cautery tip in the hand of the operator, and controls the heat by means of the rheostat mounted on a stand.

In 1921, Sistrunk[2] reported a series of cases, with no metastasis at the time of operation, which showed 10.5 per cent. local recurrence of the disease. He also reported that in forty-six cases of local recurrences 80.4 per cent. showed involvement of the lymph glands at the time of operation.

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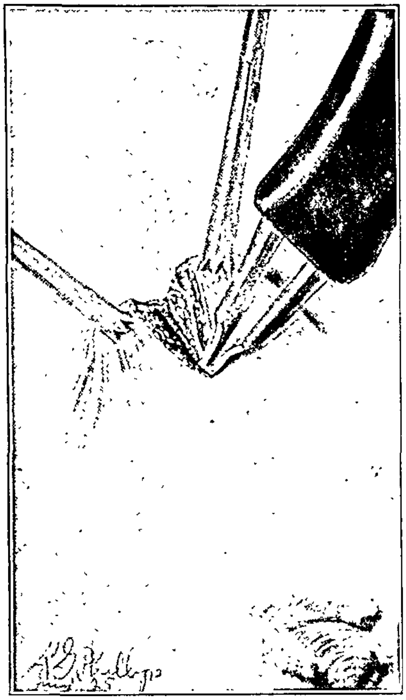

Fig. 2.—Beginning skin incision: Holding the skin on tension is one essential for a successful cautery incision.

It is not conceivable that a red hot cautery which might touch cancer cells during a surgical procedure could possibly be the means of spreading such cells into tissues through which it passed, and it could hardly be doubted that the cautery closes lymph and capillary blood vessels the instant it touches them.

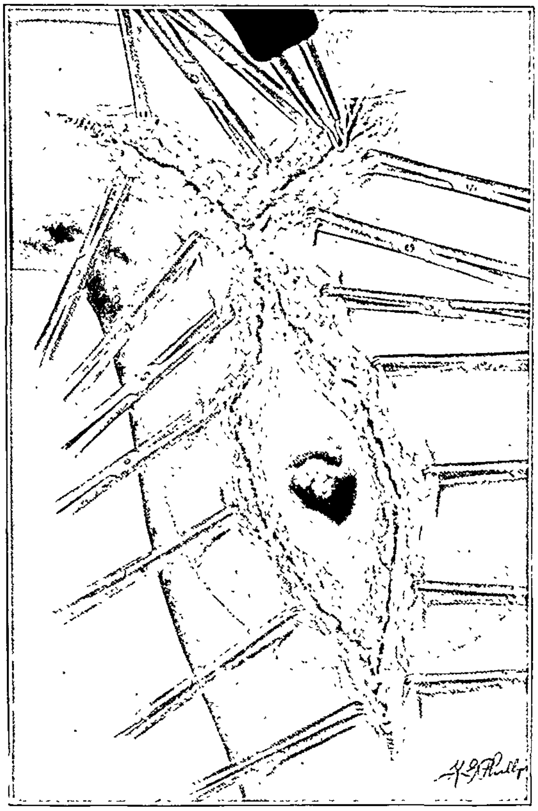

Fig. 3.—Completion of skin incision and beginning of flap dissection.

It should be made clear just here that the cauterization of cancer as practiced by the ancients with heated blunt instruments and popularized in recent times by the use of the soldering irons, and various instruments heated by electricity, in the hands of John Byrne, Percy, Bloodgood, Ochsner and others, is distinctly different from the use of the beveled edge cautery heated especially to suit various tissues involved and used like a knife for radical excision of cancerous masses, the reflection of skin flaps and block dissections. While the former may be used for making excisions, it destroys tissues in mass and leaves great areas of charred tissue, the operators depending on heat radiation for varying and uncertain distances into apparently healthy tissue in the blind hope that it may reach any cancer cells that may have escaped destruction with the deeply charred tissues.

In 1920, I[3] described much of the technic here given, showing the possibility of making skin incisions and flap reflections with the cautery in a manner to secure primary union of wounds. I also showed the possibility of removing lymph gland bearing tissues from accessible areas by dissection with the cautery alone.

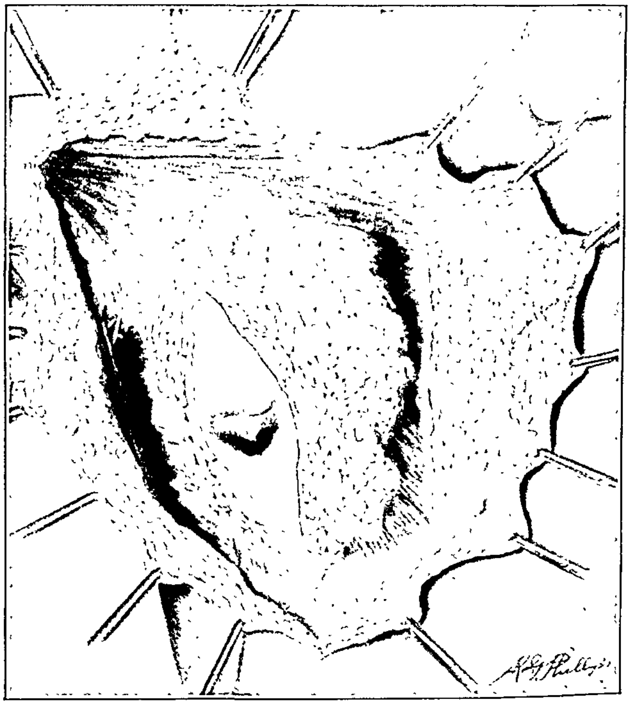

Fig. 4.—Skin flaps completed, ready for amputation, which includes pectoralis major muscle.

Space forbids giving the details of the technic in full. It is sufficient to say that the entire operation is done with the bevel edge cautery as the instrument of incision and dissection, and that observance of certain principles are absolutely essential for success. They are as follows:

1. All tissues must be held on tension as the cautery approaches them; i. e., perfect retraction is absolutely essential.
2. The cautery must be applied in strokes that are short and quick.
3. Perfect control of the cautery heat is best attained by a trained assistant who has no other duty to perform.
4. The cautery must be heated to suit the different tissues involved.
5. Three distinct differences in heat are essential:

(*a*) White heat for incising skin when primary union of skin is desired and for cutting large sensory nerves.

(*b*) Bright cherry red for reflecting skin flaps, cutting muscles and for dissections in general.

(*c*) Dark red for working close to large blood vessels and nerve trunks. With this low degree of heat the cautery tip may safely pass within one-sixteenth inch of a large vessel, loosening the areolar attachment of its sheath without damage to its wall.

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[3] Scott, A. C.: Radical Excision and Sterilization of Certain Local and Glandular Infections, Texas State J. Med. **16**: 250 (Oct.) 1920.

The three and five year tests for cure of cancer are unquestionably valuable in determining the actual results that follow operation for cancer, but they do not determine with accuracy the real value of the technic employed. Their greatest significance probably relates to the degree of malignancy, to the period of the disease, and to the state of metastasis existing at the time operation was performed.

In attempting to arrive at the merit of an operation, it is obvious that, if performed after metastasis has advanced beyond the field of operation, no surgical procedure will have any value so far as the final outcome is concerned.

We should, then, keep clearly in mind that the most perfect technic will fail in almost every case if metastasis has progressed beyond the field of operation prior to the time of operation. Regardless, then, of how good the technic may be, the surgeon's three and five year cures may show a high or low percentage of mortality, according to how careful he has been in eliminating cases that have progressed beyond hope of improvement

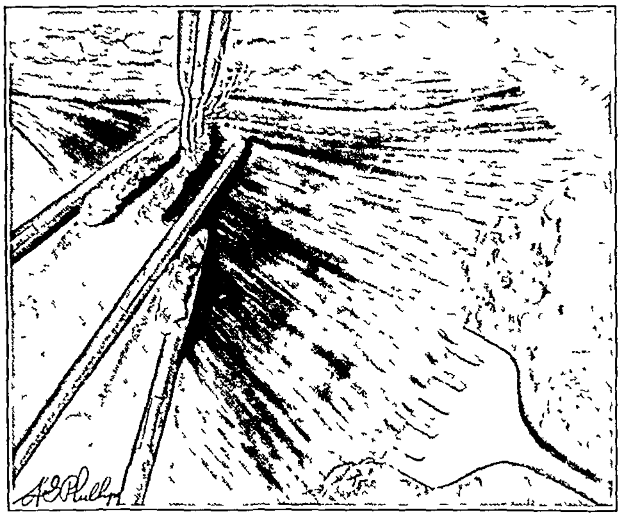

Fig 5.—Pectoralis major muscle being severed and excised with breast.

Most local recurrences are within the three year limit and most of the reported deaths after the three year limit are due to remote metastases, which evidently existed at the time of operation. In our own cases, all the local recurrences appeared in less than one year after operation, the average time being five months.

With these facts in mind and also remembering that most local recurrences are found within three years, it seems to me only rational to return to Volkmann's period of three years to determine, *not* the percentage of final cures, but rather the value of the surgical technic used in the elimination of the local disease and accessible metastasized glands.

Since patients suffering from cancer come for operation at a time when we have no means of ascertaining the limits of metastasis and no power to check metastasis beyond the first group of glands, it occurs to me that the statistical calculations which are designed to determine the value of any procedure should lay greatest emphasis on local recurrences to determine two things: 1. Thoroughness of technic in eradicating the local lesion and the accessible lymph nodes most likely to be involved. 2. The ability of the operator to remove all demonstrable lesions, and include tissues most likely to be invaded by disease, without leaving the wound contaminated with cancer cells, set free by cutting into infected areas or tearing through infected lymph nodes or chains.

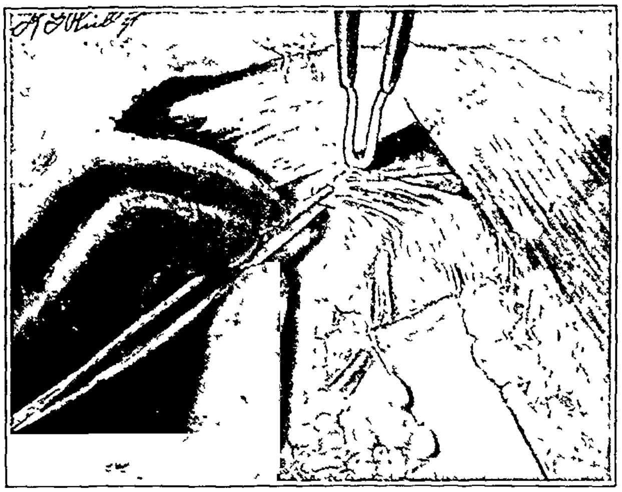

Fig. 6—Exposure of axillary vessels by removal of fascia below margins of pectoralis minor and coracobrachialis.

Therefore, I believe that the most uniform test of a therapeutic agent should be the freedom from recurrence in or about the site of operation for a period of three years.

LOCAL RECURRENCES

In this series of 145 patients traced, there were five local recurrences in or near the site of operation. Considering only seventy-eight patients operated on three years or longer, we have local recurrences of 6.4 per cent. Three of these with local recurrences would ordinarily have been considered inoperable on account of extensive infiltration and probably should not have been operated on. If these cases were not counted, the percentage of local recurrences would be 2.3.

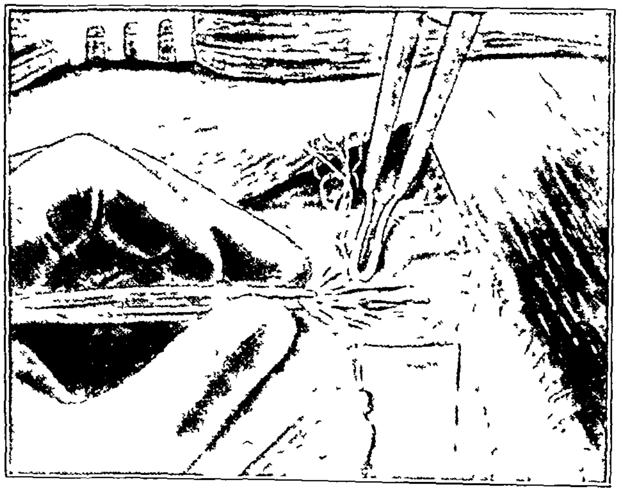

Fig 7—Easy separation of fascia from vessels by means of tension on axillary fascia, with light touches of dark red cautery.

There was not a single local recurrence in the group of thirty breast cases operated on three years or longer. As a matter of fact, up to this time there have been no local recurrences in any of the sixty-five breast cases.

The 160 cases referred to in the title of this paper were drawn from more than 700 cases of cancer in which the cautery was used for excision. Twelve of them will be disregarded in this report because of incomplete pathologic reports and because part of them were not done with the cautery alone. We are concerned with the 160 cases only because of the operative mortality, which consisted of four cases, representing 2.5 per cent. There were 148 cases which have complete pathologic reports and were done with the cautery alone, distributed as shown in the accompanying tables.

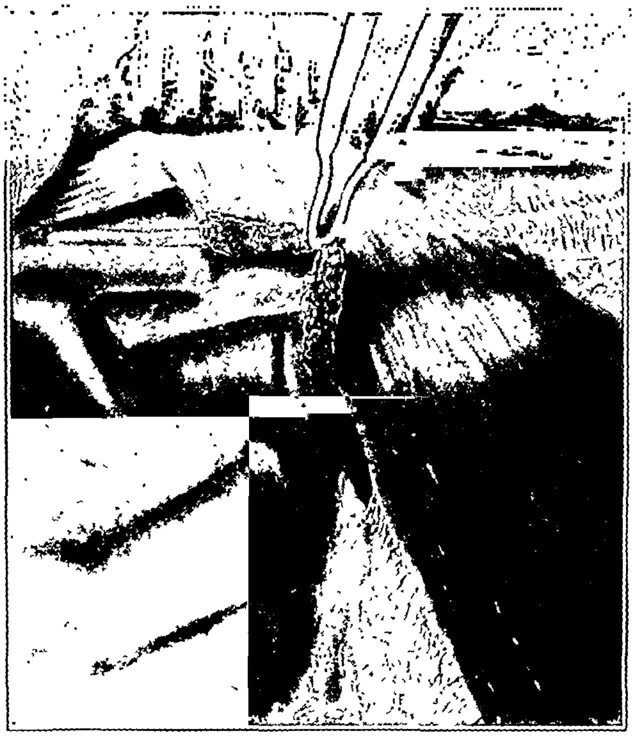

Fig. 8.—Cutting of pectoralis minor with cautery above vessels while it is being lifted with the finger.

Table 1.—*One Hundred and Forty-Eight Cautery Glandular Dissections for Metastatic Cancer*

Analysis of Cases

Location of Original Tumor	Site of Glandular Dissection	Patients	Pathologic Examination Showed Glands: Involved	Not Involved	Not Traced	Operative: Deaths	Mortality, per Cent.
Breast	Axilla	65	38	27	1	1	1.5
Tongue	Neck	6	6	..	..	1	16.6
Mouth	Neck	6	6	..	..	0	....
Lip	Neck	13	10	3	1	0	....
Parotid	Neck	5	4	1	..	0	....
Skin of scalp	Neck occipital triangle	1	1	..	..	0	....
Ear	Neck	5	5	..	..	0	....
Face	Neck	15	9	6	..	1	6.6
Neck	Neck	11	8	3	..	1	9.1
Extremities	Axilla and epitrochlear	7	7	..	..	0	....
Genitals	Groin	8	8	..	..	0	....
Glands (Original site unknown)	Axilla	4	4	..	..	0	....
	Neck	1	1	..	..	0	....
	Groin	1	1	..	1	0	....
		148	108	40	3	4	2.7

Table 2.—*Condition in Cautery Gland Dissections, All Types, Three Years or Longer After Operation*

	Operated On	Local Recurrence	Died from Distant Metastasis	Died from Other Causes	Well	Percentage of 3 Year Cures
Patients...........	78	5	20	6 (4 operative)	52	66.6
Glands involved...	62	5	20	6 (4 operative)	36	58+
No glands involved	16	0	0	0	16	100

Table 3.—*Condition in Cautery Gland Dissections for Cancer of Breast, Three Years or Longer After Operation*

	Operated On	Local Recurrence	Died from Distant Metastasis	Died from Other Causes	Well	Percentage of 3 Year Cures
Patients...........	30	0	8	1 cerebral embolus	21	70
Glands involved...	18	0	8	1 cerebral embolus	9	50
No glands involved	12	0	0	0	12	100
			Five Years or Longer			
Patients...........	11	0	3	0	8	72.7
Glands involved...	5	0	3	0	2	40
No glands involved	6	0	0	0	6	100

Table 4.—*Summary of Breast Cancer*

	Three Year Cures, per Cent.	Five Year Cures, per Cent.
Jacobson: Ohio State M. J. **14**: 639, 1818............	32.8*	23.7*
Handley: Brit. M. J. **1**: 37 (Jan. 8) 1921...............	48	....
Buchanan: Pennsylvania M. J., 1918, p. 623...........	38	23.5
Lee, B. J.: Am. J. Roentgenol., December, 1924, p. 535	....	15
Sistrunk: Ann. Surg. **65**: 63, 1922.....................	51.8	39
Scott	70	72.7

* In review of literature, 1,866 traced cases.

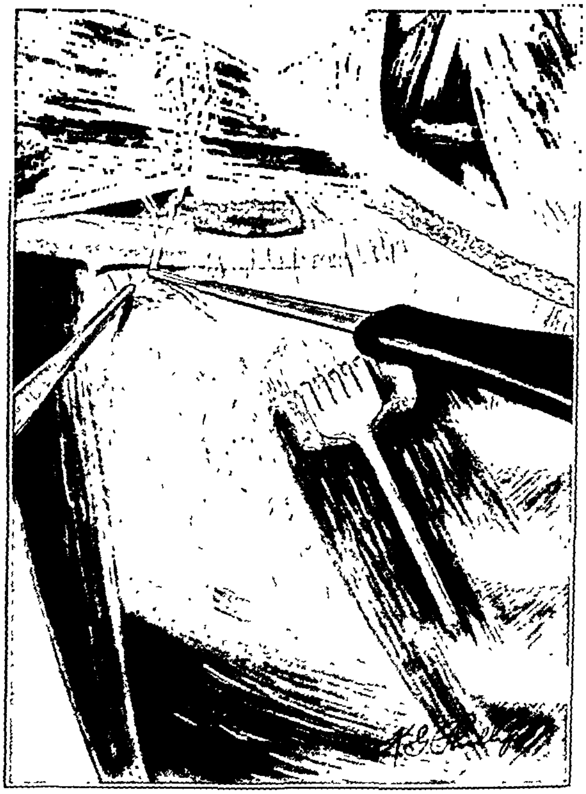

Fig. 9.—With pectoralis minor turned down, fascia covering vessels is gently placed on tension and loosened by light touches of cautery.

CONCLUSIONS

1. Block dissection of the neck, axilla and groin for metastatic cancer can be done with an electrically heated bevel edged cautery with the following results:
   - (*a*) Marked reduction in the amount of blood lost during the operation.
   - (*b*) Marked decrease in postoperative pain.

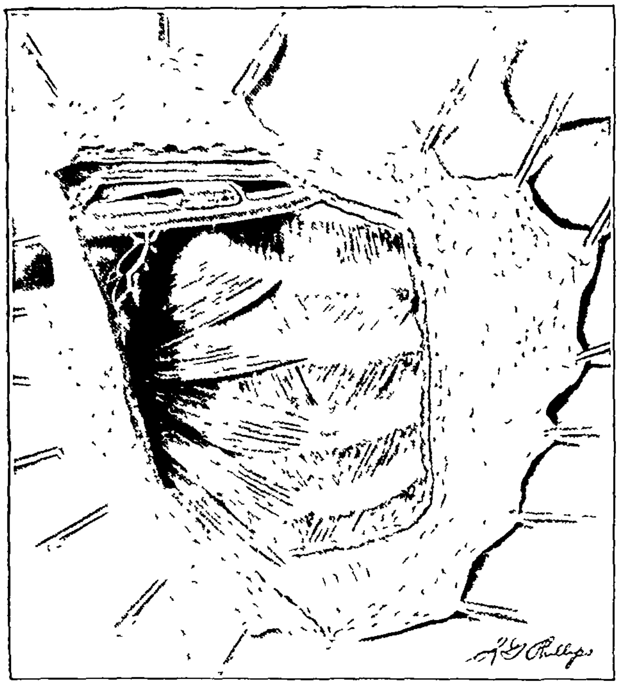

Fig. 10.—After completion of dissection, wound is ready for closure.

   - (*c*) Marked decrease in the number of patients showing any operative shock whatever.
   - (*d*) Primary union of skin flaps.

2. Operations done with the technic described, as compared with cauterization as commonly practiced, result in less pain, less shock and much shorter convalescence.

3. Operations done by this method, as compared with operations done with the knife, scissors or gauze dissection method result in:
   - (*a*) Fewer local recurrences in or near the site of operation, and therefore:
   - (*b*) A greater percentage of three and five year cures.

4. Since the groups of cases here reported contain many that would ordinarily fall in the inoperable group, I feel justified in believing that if this type of technic should be used in only the operable group, the percentage of three and five year cures would be still further increased.

ABSTRACT OF DISCUSSION

Dr. Frank E. Adair, New York: Any new method of surgically attacking breast cancer is valuable. There are so many types and clinical manifestations of the disease, each differing so vastly, that a routine surgical removal is not always the best method for a particular patient. Dr. Scott not only gives us a new method, but a complete series of traced cases treated by a method not heretofore employed. Why his percentage of five-year cures in cases having axillary involvement runs so high, I am at a loss to explain. I see no reason why those cases should have a better opportunity for cure with the cautery than with a painstaking dissection with scalpel or scissors. As a matter of fact, a microscopic study of the tissues remaining behind, treated by Dr. Scott's method, will show a very narrow zone of heat coagulation necrosis where touched by the cautery; outside this is a zone of small, mononuclear infiltration of mild degree. The tissue reaction is not intense. This is to be anticipated, because part of Dr. Scott's technic is to have the assistant forcefully retract the tissues in such a way that the cautery comes in contact with a particular portion of tissue for only a fraction of a second; otherwise, there would not be primary union. Dr. Scott has emphasized a new point of great importance to surgeons; namely, the application of the Lane technic principle to cancer surgery. I believe he is correct in making it the rule never to put into the wound a gauze sponge that he has been using before; this is particularly important when operating in an axilla that obviously is involved. Unquestionably, many cancer transplants are due to not observing this principle After all, many factors enter into breast surgery, such as the age of the patient, the type of carcinoma, lactation, rapidity of growth and distribution of the disease; these factors are, to a large extent, those that will eventually determine the future result of a particular case Unfortunately, to cope with these factors is entirely beyond the power of the surgeon.

Dr. J. F. Percy, Los Angeles: On the basis of results, Dr. Scott's paper is ideal. I believe that he could improve them still further if he made use of a knife of greater bulk. This would insure an even flow of a more penetrating degree of heat, something that cannot easily be accomplished with the type of cautery knife shown. A knife that will give a constant and adequate degree of temperature, regardless of how wet or how dry the tissues may be, can be regulated to a nicety, especially about the blood vessels. This cannot be true of the thin platinum blades that are sold for cautery purposes A knife that has bulk will feed heat into the tissues and thus destroy more cancer cells with less damage to normal cells than can the knife without bulk One cannot get heat penetration with the short, quick strokes spoken of by Dr. Scott. But with a larger knife, in which the heat is more easily regulated, fat can safely be melted on the surface of the carotid artery or jugular vein. The cancer cell is quickly destroyed by a temperature that will melt fat. With a sufficient and steady flow of heat, the outer coat of the carotid artery with its sympathetic nerve fibers can be dissected free, without permanent damage to the underlying vessel structures. I want to

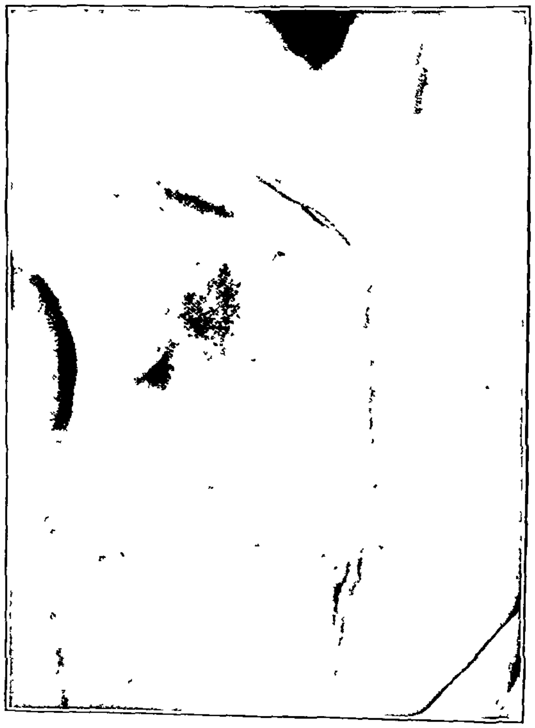

Fig. 11.—Primary union may be obtained in most cases.

take exception to a statement made by Dr. Adair that in cases in which metastasis develops we cannot hope for any results from further treatment. If the metastatic focus is accessible and is treated as actively as was the primary condition, a surprising number of these otherwise doomed patients will remain well for years. We have too many preconceived ideas regarding cancer that are not true clinically. Many of them have come down to the present time merely as traditional lore from the fathers of medicine. The appearance of a mass of cancer, great or small, ulcerating or intact, primary or metastatic, gives absolutely no clue as to the degree of either its malignancy or benignity. Untreated, patients practically all die. But if managed along modern lines, a large percentage will make a good recovery, as has so well been pointed out in the paper that we have just heard.

SPIROCHETAL PULMONARY GANGRENE TREATED WITH ARSPHENAMINS *

B. S. KLINE, M.D.
AND
S. S. BERGER, M.D.
CLEVELAND

In a previous article,[1] it was stated that "evidence is accumulating that pulmonary gangrene may be caused by spirochetes and fusiform bacilli aspirated from an unclean mouth, and that it may be prevented by proper oral hygienic measures. Furthermore, when the condition is once established a diagnosis can be made early by finding the organisms in the washed sputum, thus offering an opportunity for successful specific treatment with the arsphenamins."

The etiologic relationship of spirochetes and fusiform bacilli to pulmonary gangrene is evidenced not only by the predominance of these organisms in early gangrenous areas but also by the fact that gangrene with death in a few days was produced in guinea-pigs [2] by the injection into traumatized tissues of material from pyorrhea alveolaris, dental caries, pulmonary gangrene and Vincent's angina containing innumerable Vincent spirochetes and fusiform bacilli. The organisms in the material from four cases of Vincent's angina that produced gangrene in guinea-pigs were almost solely the characteristic spirochetes and fusiform bacilli.

The relationship of oral spirochetosis to pulmonary gangrene is emphasized by the production in a rabbit of pleuropulmonary gangrene following the intrabronchial injection of material from dental caries containing innumerable Vincent spirochetes and fusiform bacilli.

Many cases of bronchopulmonary spirochetosis have been reported from Europe and the tropics since the publications of Rona (Hungary, 1905) and Castellani (India, 1906), but in the United States, including sixteen cases observed during the course of the last two years at Mount Sinai Hospital, Cleveland, only fifty-two cases [3] of this condition have been reported. Some of these fifty-two cases were at first confused with tuberculosis, abscess, bronchopneumonia or lobar pneumonia. The disease was observed somewhat more frequently in males, the patients ranging in age from 4 to 76 years. The sputum in some of these cases was jelly-like and blood tinged, in some frankly hemorrhagic, in some purulent and in others thin, brown and foul smelling. In only two of these cases did the washed sputum show tubercule bacilli. It always contained, however, numerous spirochetes varying considerably in morphology, frequently associated with fusiform bacilli.

CASES OBSERVED AT MOUNT SINAI HOSPITAL

Case 1.—W. R., a man, aged 30, a physician, admitted, March 1, 1924, had not felt well for some time. For the past two weeks he had been coughing and expectorating incessantly and he had substernal pain and an afternoon rise in temperature. In August, 1921, he had Vincent's angina, which apparently cleared up after several injections of neo-arsphenamin.

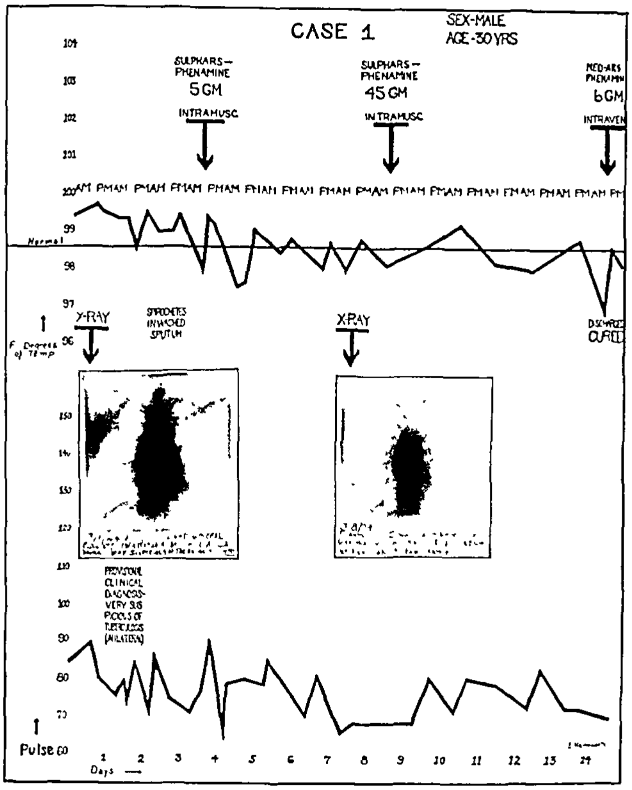

Fig. 1 (Case 1).—Course of temperature and pulse.

The examination showed a patient with asthenic habitus and a general appearance suggestive of tuberculosis. There was slight lateral curvature of the spine. There was some impairment posteriorly in the right upper chest.

March 1, the leukocytes numbered 7,200. The examination of the sputum (yellowish, purulent) was negative for tubercle bacilli. The roentgen-ray diagnosis was "very suggestive of tuberculosis of the right base and infraclavicular region."

March 3, the sputum (well washed) showed no acid-fast bacilli. Many spirochetes of Vincent type were found in Fontana stained slides. This finding, with the history of Vincent's infection in the mouth, decided us, March 4, to give 0.5 gm. of sulpharsphenamin intramuscularly.

March 8, the sputum (after treatment) showed fewer spirochetes than on March 3. The roentgen-ray examination revealed slight mottling at the base and cloudiness in the upper right chest. *This was much less than on the previous examination.*

March 9, 0.45 gm. of sulpharsphenamin was given intramuscularly.

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* From the Departments of Pathology and of Medicine of Mount Sinai Hospital.

* Read before the Section on Practice of Medicine at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Kline, B. S., and Blankenhorn, M. A.: Spirochetal Pulmonary Gangrene, J. A. M. A. **81**: *719 (Sept. 1) 1923.*

[2] Kline, B. S.: J. Infect. Dis. **32**: 481 (June) 1923.

[3] Kline and Blankenhorn (Footnote 1), twenty-four cases. Observed at Mount Sinai Hospital, Cleveland, and reported here, sixteen cases. Greeley, H.: Am. J. M. Sc. **155**: 742 (May) 1918, three cases. Pilot, I.; Davis, D. J., and Shapiro, I. J.: Am. Rev. Tuberc. **8**: 249 (Nov.) 1923, five cases. Rawson, Vance: Spirochetal Abscesses of the Lung, J. A. M. A. **82**: 545 (Feb. 16) 1924, one case. McNeill, C.: Bull. Johns Hopkins Hosp. **35**: 368 (Nov.) 1924, one case. Jackson, Chevalier: Ulcerative Bronchitis Due to Vincent's Organisms, J. A. M. A. **83**: 1845 (Dec. 6) 1924, two cases.

March 14, the roentgen-ray examination, after two injections of sulpharsphenamin, showed that practically all infiltration had disappeared.

All signs and symptoms rapidly disappeared. The temperature and pulse reached normal. The cough and expectoration ceased. The patient was discharged free from all symptoms, March 15, two weeks after admission.

CASE 2.—J. A., a man, aged 29, a patient of Dr. Harold Feil, admitted, July 28, 1924, six days before admission began having fever, headache, cough and some pain in the chest. He was apathetic, cyanotic and acutely ill. The temperature was 100.2 F.; the pulse, 115, and the respirations, 30. The patient coughed frequently, bringing up abundant purulent sputum. The teeth showed several fillings and crowns. There were signs of consolidation of the lungs at both bases, more marked over the right base. Crepitant râles were present. Anteriorly there were signs of diffuse bronchitis. The clinical impression was diffuse bronchitis and bronchopneumonia.

July 28, the leukocytes numbered 15,000. The roentgen-ray examination showed moderate thickening of the hilum and marked fine and coarse mottling throughout the right side of the chest. In the left side of the chest there were several small areas of increased density throughout; also some fine mottling, less marked than on the right side.

July 29, the sputum showed no tubercle bacilli. There were a moderate number of Vincent spirochetes and fusiform bacilli present.

July 31, the leukocytes totaled 16,200.

From July 29 to August 6, daily sputum examination showed no tubercle bacilli.

August 2, the patient received 0.4 gm. of neo-arsphenamin intravenously. The following day he was much improved. The temperature was normal; the coughing and expectoration were diminished.

August 6, the patient was given 0.6 gm. of neo-arsphenamin intravenously and discharged from the hospital, greatly improved.

Beginning August 8, the patient was given four weekly intravenous injections of neo-arsphenamin followed by complete recovery. He has been working since.

May 5, 1925, the roentgen-ray examination showed the lungs to be clear.

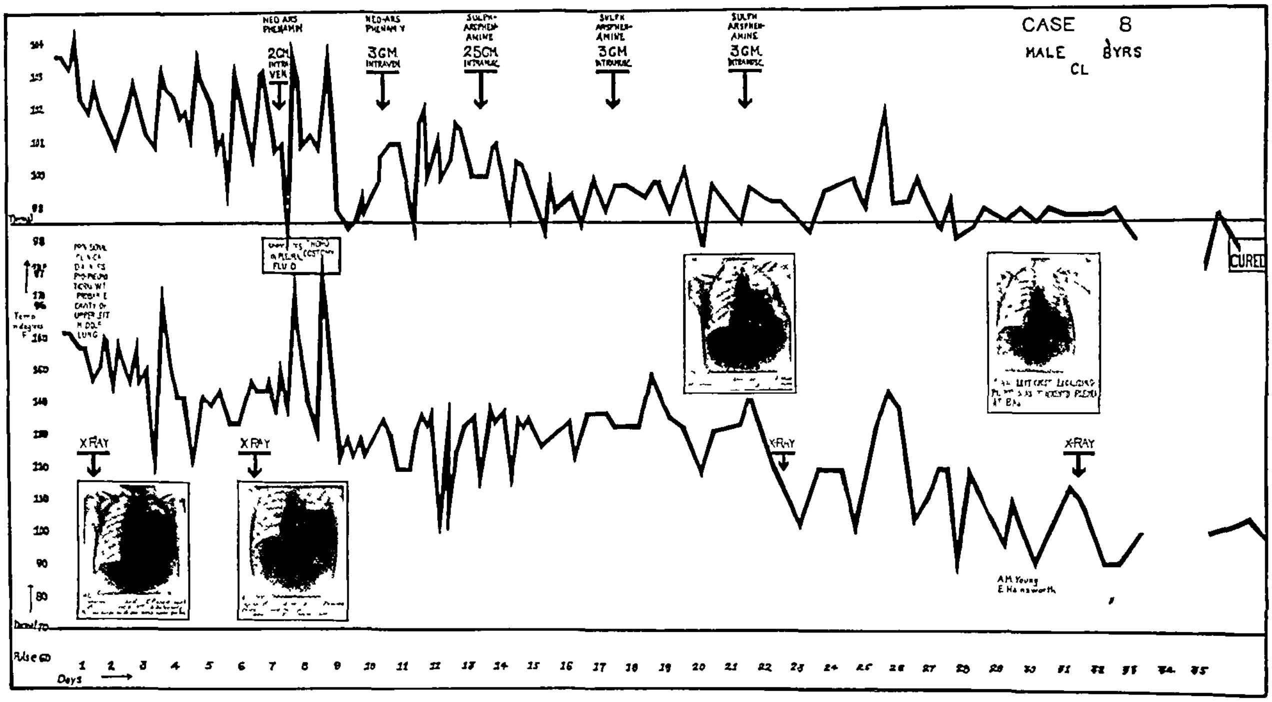

Fig 2 (Case 2) —Course of temperature and pulse.

CASE 3.—O. F., a man, aged 58, on admission, Feb. 1, 1924, stated that he had bronchitis for seven years with moderate cough. A week before, he developed fever and was obliged to remain in bed. The night before admission, after a severe coughing spell, he noticed that the sputum was bloody. February 1, following a coughing spell, a large amount of bright red blood gushed from his mouth. He was brought to the emergency room and admitted to the hospital.

The examination revealed a dark cherry hue to the patient's lips, marked oral sepsis, marked general arteriosclerosis, and barrel chest with signs of chronic bronchitis and emphysema. The blood pressure was: systolic, 138; diastolic, 80. The spleen was felt about a hand's breadth below the costal border, the edge firm, smooth and not tender. The liver was palpable, the edge firm, not tender. The reflexes were normal.

The clinical diagnosis was emphysema; chronic bronchitis; Vincent infection of mouth and lung; polycythemia vera.

November 3, the roentgen-ray examination showed generalized peribronchial thickening, slight mottling of the infraclavicular areas, and moderate infiltration at the left base.

The red blood count ranged from 7,100,000 to 13,500,000; the leukocytes, from 16,800 to 24,000. The hemoglobin was 130 per cent. The blood Wassermann reaction was negative. Daily examinations of the sputum were negative for tubercle bacilli. Numerous fusiform bacilli and spirochetes were found in direct smears from the mouth and also on three occasions from the washed sputum.

November 7, 0.3 gm., and November 10 and 13, 0.4 gm. of sulpharsphenamin was given intramuscularly. The acute pulmonary condition cleared up completely. Phenylhydrazin was given for the Vaquez disease until the red blood count was down to about 5,000,000. Since then the patient has been receiving it intermittently when his blood count rises.

The patient was discharged, improved, November 13.

December 2, he received 0.4 gm. of sulpharsphenamin intramuscularly.

May 5, 1925, roentgen-ray examination showed generalized peribronchial thickening but no infiltration.

CASE 4.—V. C., a man, aged 29, who came to the dispensary, March 28, 1924, stated that he began to have rheumatism with painful and swollen joints while in the army. Since his discharge in 1919, he had not felt well because of recurring attacks of rheumatic pains. For the last two years he had been spitting blood every morning. Eight months before coming, he was treated for rheumatism at the Marine Hospital.

The examination revealed signs and symptoms suggesting tuberculosis of both upper lobes, with activity in the left upper lobe. During an examination in the ear, nose and throat department, blood was seen coming from the trachea.

March 29, the roentgen-ray examination was suggestive of tuberculosis of the upper part of the chest on both sides.

April 10, the sputum showed many fusiform bacilli and spirochetes of Vincent's and the macrodentium type.

April 11, the sputum (washed) was negative for tubercle bacilli. It showed innumerable Vincent spirochetes.

April 30, 0.2 gm. of arsphenamin, and May 14, 0.5 gm. of arsphenamin were given intravenously.

May 22, the sputum was negative for tubercle bacilli.

May 28, the sputum still showed Vincent organisms. The patient was given 0.5 gm. of arsphenamin intravenously. The patient felt much better. All joint pains had disappeared.

June 4, neo-arsphenamin, 0.5 gm., was given intravenously.

June 11, sulpharsphenamin, 0 5 gm., was given intramuscularly. The patient, much improved, did not return for further treatment.

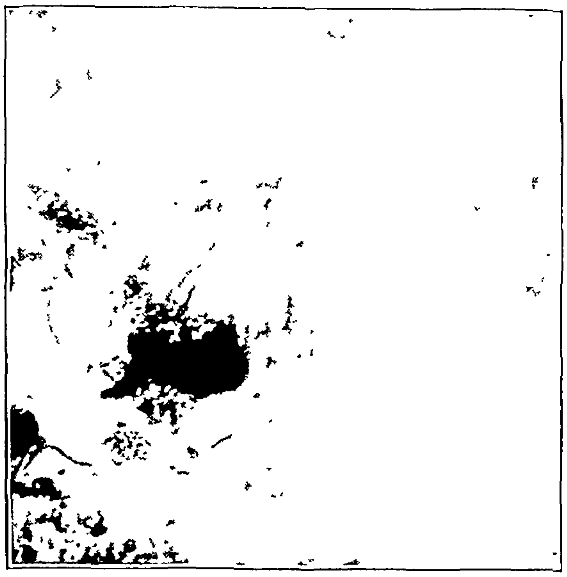

Fig 3 (Case 8).—Carious tooth: spirochetes (Vincent and macro dentium types).

Case 5—L. G., a man, aged 55, admitted, Nov. 26, 1924, had a cold a year before admission which never cleared up. About two weeks before admission, he noticed blood in the sputum. He had been short of breath for a long time and had had cough and precordial distress. There had been some loss of weight.

On examination, the patient appeared cachectic, apparently quite ill and markedly prostrated. There was icteroid discoloration of the skin and conjunctivae. The lips were cyanotic. There was marked oral sepsis. The fingers were clubbed. Marked generalized arteriosclerosis was noted. There was flattening of the left side of the chest, with diminished respiratory excursions in the upper part. The breath sounds and fremitus were absent. Similar physical signs were made out posteriorly over the left apex. They were much more marked anteriorly. A soft systolic murmur, probably inorganic, was heard over the apex and the base of the heart. The liver and spleen were palpable. The clinical diagnosis was lung abscess.

The appearance of the mouth and the characteristic foul odor of the sputum suggested the possibility of spirochetal infection of the lung. Smears from the mouth and the washed sputum, November 26 to November 30, showed the presence of a few Vincent spirochetes. On the latter date, 0 45 gm. of neo-arsphenamin was given intravenously.

November 28, the blood Wassermann reaction was four plus.

Repeated sputum examinations showed the presence of fusiform bacilli until December 18. December 6, 12 and 18, the patient was given 0.6 gm. of neo-arsphenamin intravenously.

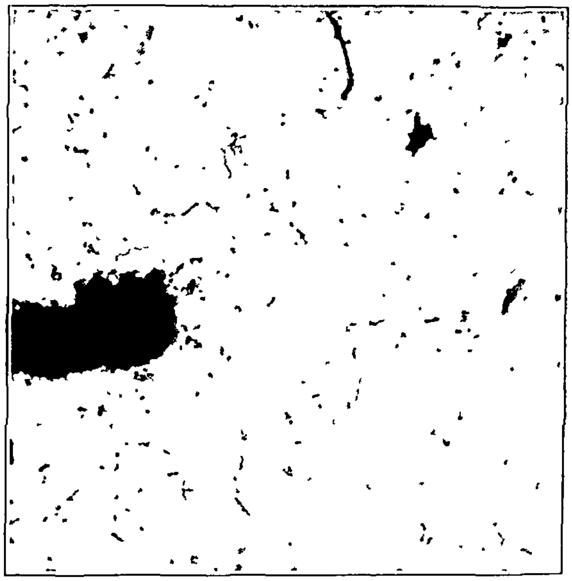

Fig. 4 (Case 8).—Washed sputum: Vincent spirochetes.

Some improvement was shown. The temperature gradually came down, but there was a slight daily elevation, apparently due to the presence of a tuberculous infection. The tubercle bacilli were found in the sputum, December 30. As the patient required additional observation and care, he was sent to the City Hospital.

Case 6.—W. P., a man, aged 27, admitted, Sept. 9, 1924, had been confined in a Chicago hospital five months before, with a condition diagnosed pneumonia of the left upper lobe. At the end of three weeks he was discharged with a diagnosis of unresolved pneumonia. He later went to New York, where a diagnosis of pulmonary abscess was made. The patient's mother died from tuberculosis. One sister had tuberculosis.

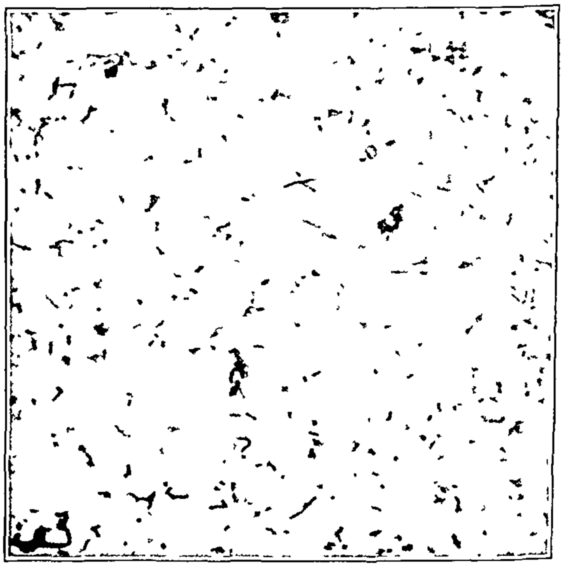

Fig. 5 (Case 8).—Pleural fluid: Vincent spirochetes.

The patient had marked oral sepsis. He coughed and expectorated large quantities of foul smelling sputum. Slight clubbing of the fingers was noted. There were signs of thickened pleura, with some infiltration and cavity formation of the left upper lobe. The leukocytes numbered 14,000. The clinical diagnosis was pulmonary abscess of the left upper lobe. This was confirmed by the roentgen-ray examination, September 21.

The patient's temperature ranged between 99 and 103 F. Repeated daily sputum examinations were negative for tubercle bacilli. September 11, the sputum had a slightly foul odor and contained Vincent spirochetes and fusiform bacilli, and on the 12th, the patient received 0.4 gm. of sulpharsphenamin intramuscularly.

October 10, the patient had not improved appreciably since admission, so operation was decided on. A thoracostomy under local anesthesia was performed. The pleura was opened and a good sized pus pocket, well walled off with adhesions, was encountered. The lung abscess in the left upper lobe was drained. A smear of this material showed innumerable Vincent spirochetes and fusiform bacilli. October 15 and 18, the patient received 0.6 gm. of neo-arsphenamin intravenously. The temperature dropped to normal. The general condition improved markedly.

December 20, the sputum was brown and foul smelling. It was negative for tubercle bacilli.

December 24, the material draining from the thoracostomy wound contained a moderate number of fusiform bacilli and spirochetes of Vincent type.

December 26, in medical consultation, Dr. Berger recorded the following: "The finding of fusiform bacilli and spirochetes in the drainage from the thoracostomy wound should not go unheeded. It would be well, therefore, to give the patient neo-arsphenamin. The odor of the discharge from the wound is characteristic of gangrene."

December 27, 0.4 gm. of neo-arsphenamin, and Jan. 4, 1924, and January 10, 0.6 gm. of neo-arsphenamin was given intravenously.

January 1, the blood Wassermann reaction was plus-minus.

January 1, during the pleural irrigation, the patient stated that he could taste the surgical solution of chlorinated soda.

January 17, the roentgen-ray examination showed a large partial pneumothorax on the left side extending from the base along the axillary line to the apex. There was no evidence of fluid in the chest.

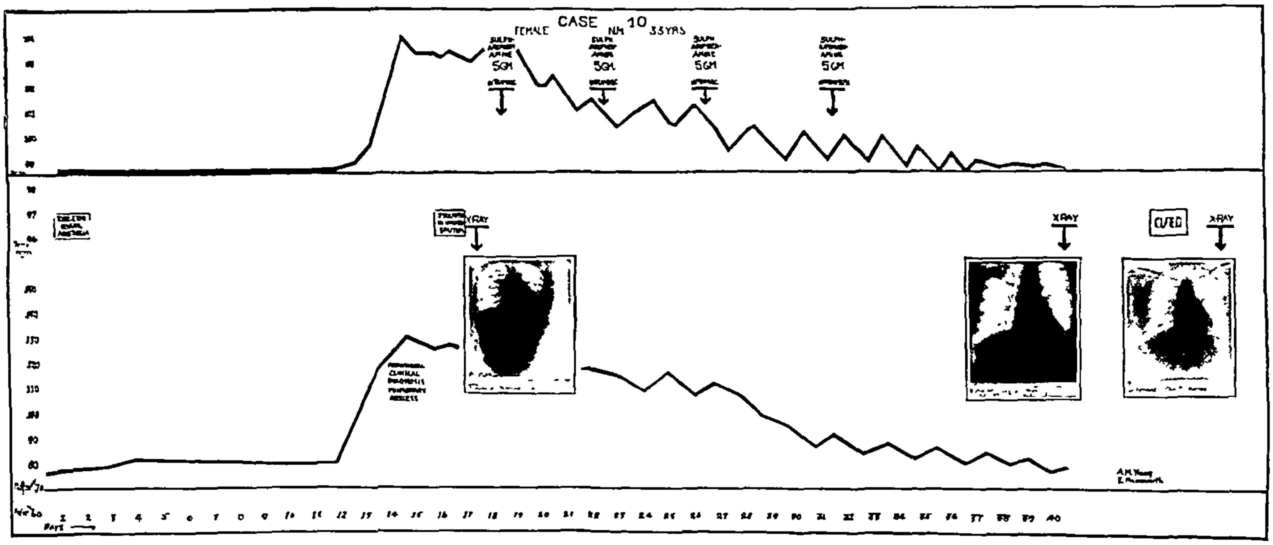

Fig. 6 (Case 10).—Course of temperature and pulse.

October 27, the wound was practically closed and there was only a small amount of drainage; 0.6 gm. of neo-arsphenamin was given intravenously.

November 3, the wound was entirely closed. There was no discharge. The examination of the chest showed practically normal signs except for sharpened breathing at the left upper lobe. All signs of infection had abated. There had been no elevation of temperature for ten days. Neo-arsphenamin, 0.6 gm., was given intravenously.

November 15, the patient was discharged, improved.

Case 7.—H. D., a man, aged 32, admitted, Nov. 10, 1923, with a gunshot wound in the third left interspace 0.5 cm. above the left nipple, was critically ill. The point of exit was opposite the wound of entrance in the fifth interspace in the midscapular line posteriorly. There was evidence of a hemothorax of the left chest.

November 11, 600 c.c. of whole blood, uncitrated, was given intravenously.

November 12, the leukocytes numbered 11,000.

November 13, November 20 and December 8, thoracentesis was performed, and from 300 to 1,100 c.c. of thick, sanguineous fluid was obtained.

November 19, the sputum contained blood. It was negative for tubercle bacilli.

December 14, a resection of a portion of the ninth rib was performed. No fluid was encountered in the pleural cavity. Tubes were inserted, and the cavity was irrigated with surgical solution of chlorinated soda (Dakin solution).

February 3, the patient was discharged improved.

April 28, 1925, he had regained his weight and had returned to police duty. His mouth still contained spirochetes. The roentgen-ray examination of the lungs was negative except for thickened pleura on the left side.

Case 8.—C. L., a boy, aged 8, referred by Dr. J. W. Epstein, admitted, April 21, 1925, with a diagnosis of pneumonia, began having pain on the left side with difficulty in breathing, cough and fever, five days before. He had a tonsillectomy under general anesthesia two weeks before admission.

The physical signs and symptoms on admission suggested lung abscess and open pyopneumothorax. The sputum was foul smelling. The leukocytes numbered 28,000. The patient's condition was very grave.

April 22, the roentgen-ray examination showed the costophrenic angle obliterated, a fluid level to the third rib anteriorly on the left side, and a pneumothorax above this point.

April 27, the roentgen-ray examination showed a fluid level at the third rib with a pneumothorax above this point. The diagnosis was pyopneumothorax on the left side. The sputum (washed) showed many Vincent spirochetes and fusiform bacilli.

April 28, a smear from a carious tooth showed numerous Vincent spirochetes and fusiform bacilli; 110 c.c. of foul smelling thin pus was obtained from the left side of the chest, a smear of which showed innumerable Vincent spirochetes and a moderate number of fusiform bacilli. The patient was given 0.2 gm. of neo-arsphenamin intravenously.

April 29, a thoracostomy was performed under local anesthesia on the left side. A large amount of foul smelling pus containing innumerable Vincent spirochetes was obtained. The washed sputum likewise contained many Vincent spirochetes and fusiform bacilli.

May 1, 0.3 gm. of neo-arsphenamin was given intravenously. The patient was still critically ill.

May 4, 0 25 gm. of neo-arsphenamin was given intravenously. The child was much improved. The discharge was still profuse but odorless.

May 8, 0.3 gm. of sulpharsphenamin was given intramuscularly. The child was practically well. The temperature and pulse were around the normal level.

Fig 7 (Case 15).—Tooth caries (spirochetal).

May 12, 0.3 gm. of neo-arsphenamin was given intramuscularly.

May 13, the roentgen-ray examination showed the costophrenic angle obliterated on the left side, moderate cloudiness at the base, and a partial pneumothorax at the base to the third rib.

June 17, the patient was discharged cured.

Case 9.—L J., a woman, aged 37, was admitted, Sept. 30, 1923, for a study of the genito-urinary tract. Tonsillectomy, adenoidectomy and teeth extraction were performed under general anesthesia, October 10.

The examination was essentially negative except for tenderness in the region of the left flank. The roentgen-ray examination of the teeth showed several abscesses. The tonsils were cryptic and greatly hypertrophied.

October 11, a rise in temperature was noted. October 13, the patient complained of pain in the right side of the chest and back. October 14, the patient had severe coughing spells and sweats, was restless, exhausted, delirious and refused nourishment. The respirations were short and gasping. October 15, the temperature reached 103 F. The leukocytes numbered 12,500. Seven days after operation, the patient expectorated a considerable amount of very offensive, blood-streaked sputum. The sputum examination was negative for tubercle bacilli.

October 26, the clinical diagnosis was lung abscess. The roentgen-ray examination was very suggestive of lung abscess at the right base.

The patient's condition steadily grew worse. There was expectoration of large quantities of foul smelling sputum, which directed a search for spirochetes, and they were recovered in large numbers from the washed sputum (November 16). The same day, the patient received neo-arsphenamin intravenously, and prompt improvement in all signs and symptoms was noted.

November 23, 0 6 gm. of neo-arsphenamin was given intravenously. The temperature, pulse and respirations gradually approached normal and the patient was discharged much improved, December 2 (seventeen days after the first antisyphilitic treatment).

April 28, 1925 (twenty months later), she was in good health The roentgen-ray examination showed very slight cloudiness in the right upper chest, but otherwise was negative.

Case 10—M. M., a woman, aged 33, a patient of Dr. Mahrer, was seen at home. She had had a tonsillectomy under general anesthesia, Sept. 2, 1924, with an apparently good recovery until September 13. On this day the patient became ill with a sharp pain in the right side with cough and fever. On the 15th, when seen in consultation, she showed well marked signs of infiltration of the right upper lobe The temperature ranged up to 104 F. There was marked prostration. The sputum had a foul odor, of which the patient was conscious and complained. A tentative diagnosis of lung abscess following tonsillectomy was made. Because of the characteristic odor of the sputum, spirochetal infection was suspected and smears of the mouth and washed sputum were made, September 18, and showed numerous Vincent spirochetes and fusiform bacilli.

September 18, the roentgen-ray examination of the chest with a portable apparatus showed marked density in the upper right part of the chest, with a small cavity in the infraclavicular area.

Four intramuscular injections of sulpharsphenamin (each 0.5 gm.) were given at intervals of five days, beginning September 18. The patient made an uneventful recovery, and at the end of four weeks was able to leave her bed. The patient has been well since and is teaching school as before.

October 10, the roentgen-ray examination revealed much less density and infiltration of the right chest than on the first examination. The diagnosis was pulmonary abscess.

April 25, 1925, the roentgen-ray examination revealed that the chest was normal.

Case 11.—T. S., a man, aged 39, admitted, Nov. 26, 1924, had had pleurisy, and rheumatic fever with mitral valvulitis, in 1915. Later a mitral stenosis developed. In July, 1924, there was infarction of the kidney, with hematuria.

Two years before admission, the patient began having some pain in the chest, with difficulty in breathing, and since then had been incapacitated a good part of the time. About two weeks before admission, his condition became worse, with coughing and expectoration of yellowish, bloody sputum with some odor.

The examination showed signs of emphysema with chronic bronchitis and superimposed acute infection of the bronchi causing marked respiratory embarrassment. There was no evidence of cardiac failure.

November 26, a smear from the teeth showed a moderate number of fusiform bacilli. No spirochetes were seen.

November 27, the roentgen-ray examination of the right side of the chest showed the hilum enlarged, with much vascular congestion extending into the lung. There was cloudiness in the midportion of the lung. The left lung showed the diaphragm and the costophrenic angle slightly clouded. There was haziness of the entire lung from a thickened pleura. The orthodiagram showed a typical configuration of mitral stenosis. The leukocytes numbered 11,000. The blood Wassermann reaction was negative.

From November 27 to December 4, daily examinations of the washed sputum revealed the presence of a moderate number to innumerable Vincent spirochetes and fusiform bacilli. No tubercle bacilli were found.

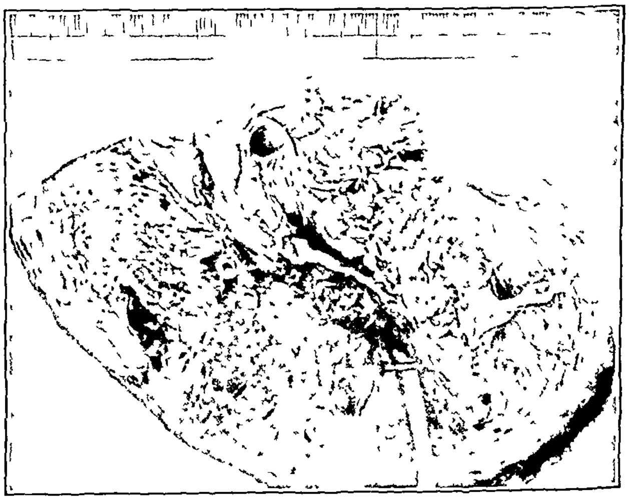

Fig. 8 (Case 15).—Spirochetal pulmonary gangrene.

Since the Vincent organisms were repeatedly recovered from the washed sputum, the condition was considered a spirochetosis superimposed on a chronic bronchitis. December 4, the patient received 0.6 gm. of neo-arsphenamin intravenously. The next day he left the hospital improved and did not return to the outpatient department for observation.

Case 12.—G. K., a man, aged 42, was admitted to the hospital, May 24, 1924, in a dying condition. His eyes were hollow and sunken. The malar bones were prominent. He was stuporous. The respirations were rapid and shallow. There was coughing, with occasional expectoration of very foul smelling, greenish gray sputum. The mouth showed marked oral sepsis. The posterior pharyngeal wall was covered with a thick, foul, greenish, purulent discharge. The tonsils were moderately enlarged. The cervical glands were palpable, about the size of almonds. The chest showed signs of abscess of the right lung. The clinical impression was pulmonary abscess with gangrene.

May 25, the sputum contained numerous Vincent spirochetes; there were no tubercle bacilli. On this day and the 27th, the patient received 0.6 gm. of neo-arsphenamin intravenously. The temperature ranged from 100 to 103 F., the pulse from 120 to 140, the respirations from 30 to 60. Roentgen-ray examination (May 19, before admission to the hospital) showed a marked area of infiltration in the region of the middle lobe, with two distinct abscess cavities in the middle of this infiltration. There was slight mottling in the apex.

The patient died, May 28, four days after admission.

Case 13.—J. S., a man, aged 29, overweight, with diabetes, admitted, March 1, 1925, complained of pain in the abdomen. There were signs of acute appendicitis. The leukocytes numbered 18,000. The patient was operated on the same day. The diagnosis of the surgical specimen was acute suppurative appendicitis, with areas of gangrenous necrosis.

About the fifth day after the operation, the patient experienced pain in the left side of the chest, followed by hemoptysis. There was also some elevation of temperature.

March 9, an examination revealed signs of pleurisy on the left side. Later there were signs of effusion.

March 18, the chest was aspirated and 400 c.c. of foul smelling, purulent material was obtained, a smear of which showed innumerable fusiform bacilli and few Vincent spirochetes. No tubercle bacilli were found.

March 20, the patient was given 0.6 gm. of neo-arsphenamin intravenously.

March 21, a smear from the teeth showed many Vincent spirochetes and fusiform bacilli.

Three examinations of the sputum, March 21 to March 26, were negative for tubercle bacilli. Roentgen-ray examination on the latter date showed the costophrenic angle on the left side obliterated, and slight cloudiness throughout the chest, less marked in the upper part. The diagnosis was: thickened pleura with a small amount of fluid in the left chest. On the same day, the patient was given 0.6 gm. of neo-arsphenamin intravenously.

March 28, the patient complained of pain in the chest and abdomen. He was perspiring a great deal. His temperature was 99.5 F. At his request he was transferred to the Charity Hospital, improved but still quite ill.

Case 14.—J. V., a man, aged 38, admitted Sept. 24, 1923, had had blood poisoning, Nov. 28, 1922, which followed a cut in the hand. December 3, bronchitis developed, followed by pneumonia. This lasted for about five weeks. He was in bed from Dec. 2, 1922, to Jan. 7, 1923. He improved but did not fully recover. In April and again in May the cough, expectoration and pain in the chest became aggravated. About a week previous to admisison there was intense pain in the right chest, dyspnea and cough. The chest was aspirated at the dispensary and fluid was obtained.

The examination in the hospital showed signs of fluid in the right side of the chest. The teeth showed erosions and cavities, with foul smelling contents. The tonsils were large and cryptic. The cervical glands were palpable.

September 24, the roentgen-ray examination showed fluid in the right pleural cavity, with infiltration very suggestive of tuberculosis. A smear of the pleural exudate obtained was negative for tubercle bacilli. The leukocytes numbered 21,600.

September 29, a thoracostomy was performed, with resection of a portion of the right ninth rib. Foul smelling pus was found in the pleural cavity. This continued to drain for a month. The general condition of the patient steadily became worse.

October 27, the pus from the pleural cavity, whitish yellow, foul smelling, showed innumerable Vincent spirochetes and fusiform bacilli. The condition of the patient was extremely poor, and 0.6 gm. of neo-arsphenamin was given intravenously.

October 29, the washed sputum showed innumerable Vincent spirochetes and fusiform bacilli. The patient died at 1:40 p. m.

Case 15.—J. H., a man, aged 68, was admitted Jan. 15, 1924, for a prostatectomy.

January 29, the day following the prostatectomy, the chest examination revealed impairment of resonance at the right base, with showers of râles at both bases, more especially the right.

February 2, the patient coughed considerably and expectorated yellowish sputum. The right side of the chest showed definite patches of pneumonic infiltration.

From February 2 to February 23, the course of the disease continued like a pneumonic process with elevation of temperature, the general condition growing steadily worse.

February 23, the patient's lung condition never cleared up. It was noted that the odor of the breath was foul. There was an abrupt change in his general condition. He became restless and delirious, and he died in a few hours.

The necropsy (February 24) showed a number of teeth absent from the lower jaw, a few missing from the upper jaw. Some of those remaining showed fillings. Others showed erosions and cavities filled with foul smelling viscid greenish material. This was especially true of the last molar in the upper jaw on the left side. The gums showed some injection and were overlaid in a few places by thin, viscid material. The pyorrhea was much less marked than the caries. A smear of the material from a carious tooth showed innumerable spirochetes of Vincent and macrodentium types, fusiform bacilli, large curved gram-negative bacilli, gram positive cocci and other organisms.

When the thorax was opened, the lower half of the right pleural cavity laterally and posteriorly contained between adherent thickened visceral and parietal pleura a few hundred cubic centimeters of thin, turbid, faintly green tinged yellowish, somewhat foul smelling fluid.

The right upper lobe of the lung showed in the posterior and dependent portions patches of reddish gray consolidation varying in size up to several centimeters, in some of which there was cavity formation. The inner wall was necrotic, faintly green tinged, yellowish. In the lumen there were masses of necrotic tissue débris apparently and exudate with a foul odor, weak but penetrating. These gangrenous areas communicated with bronchial branches which showed marked swelling and injection of the mucosa, with necrotic material and mucopus in the lumen. There was no consolidation or cavitation in the right middle lobe. On section of the lower lobe, a striking picture presented similar to that in the posterior and dependent portion of the upper lobe. The consolidation and gangrenous ulceration were somewhat more marked here. There was one solid patch in the center of the left upper lobe toward the anterior surface several centimeters in diameter. The lower lobe on section was similar to the right upper lobe, with patches of consolidation in the posterior and dependent portions, with areas of gangrenous necrosis, the cavities varying in size up to several centimeters. In one portion the process reached practically to the pleura, over which there were the adhesions mentioned above.

A smear from an area of gangrenous necrosis of the lung showed organisms indistinguishable from those observed in the smear of the material from the carious tooth.

Histologically, the picture in the lungs was similar to that described in previous cases of spirochetal pulmonary gangrene.

Case 16.—J. H., a man, aged 26, was admitted. Oct. 6, 1924, with signs of an acute appendicitis for which he was operated on the same day. A gangrenous appendix was removed.

October 8, the patient's condition was alarming, the temperature 102 F., the pulse 130, and the respirations 30.

October 12, the patient was seen in consultation by Dr. Berger, who noted marked oral sepsis suggestive of Vincent's infection. There were signs of consolidation and fluid in the right side of the chest. October 13, the roentgen-ray examination confirmed this diagnosis.

October 16, thoracentesis was done. No fluid was obtained. The pus was thought to be encapsulated.

October 23, a smear from the mouth showed Vincent spirochetes and fusiform bacilli.

October 24, the leukocytes numbered 22,400. The right side of the chest was again aspirated, but no fluid was obtained and it was thought that the pus was probably encapsulated. The presence of spirochetes in smears from the mouth made us suspicious of their presence in the lungs. The patient was very ill.

October 25, a smear from the mouth again showed Vincent organisms. Arsphenamin therapy was instituted, and 0.4 gm. was given intravenously, but the patient died the same day.

The necropsy (October 26) disclosed the teeth in fair condition. A number, however, showed erosions. The gums, especially anteriorly, showed numerous areas of ulceration and discoloration. A smear from an area of ulceration showed innumerable spirochetes of Vincent, macrodentium and larger types, the first type predominating; innumerable fusiform bacilli, and innumerable other mouth organisms.

The right pleural cavity contained a few hundred cubic centimeters of serosanguineofibrinopurulent fluid. There were apparently organizing adhesions between the chest wall and the lung, especially laterally and posteriorly in the lower two thirds. There were organizing adhesions also to the diaphragm and to the pericardium. Between the middle and the lower lobes, about 40 c.c. of clear yellow fluid was found. The left pleural cavity contained about 60 c.c. of blood-tinged fluid. There were some friable adhesions about the lower lobe, especially along the inferior border and posteriorly.

On section of the right upper lobe of the lung, a considerable area of the inferior fourth of the lobe appeared consolidated. Four patches varying in size from 1 cm. to several centimeters showed central ulceration, the cavities varying in size up to 1 cm. in diameter. Three contained thin, slightly viscid, greenish brown, foul smelling fluid. No consolidation was observed anywhere in the middle lobe. Along the inferior border of the lower lobe, there were two wedge shaped sharply demarcated solid areas each about 4 cm. in diameter, apparently infarcts. Along the inferior border of the left lower lobe anteriorly there was a wedge shaped area 6 by 3 by 3 cm., sharply demarcated and apparently an infarct.

A smear made from one of the gangrenous cavities showed innumerable spirochetes and fusiform bacilli, together with innumerable other mouth organisms. The spirochetes were of Vincent, macrodentium and larger types, the first type predominating.

Histologically, the picture in the lung was similar to that described in previous cases of spirochetal pulmonary gangrene, and in places showed changes characteristic of pulmonary embolism and infarction.

CONCLUSIONS

1. At Mount Sinai Hospital, Cleveland, in the course of two years, sixteen cases of pulmonary or pleuropulmonary spirochetosis have been observed. This number gives a better idea of the incidence of this condition than the fact that only fifty-two cases have thus far been recorded in the literature of the United States.

2. In five of our cases in which definite gangrenous necrosis with cavitation was present, arsphenamin treatment apparently prevented death and resulted in practically complete disappearance of all symptoms referable to this condition. Five cases in which there was extensive pulmonary or pleuropulmonary gangrene, and in which no treatment was given or treatment when the patients were moribund, resulted unfavorably. In five of six cases in which there were less severe acute pulmonary lesions, arsphenamin treatment resulted in prompt cure. The sixth patient left the hospital after one injection of arsphenamin.

3. The onset of pulmonary gangrene in the course of any respiratory condition should be suspected when the sputum becomes brown and foul smelling and there is an increase in the severity of the existing signs and symptoms.

4. A diagnosis before any appreciable pulmonary destruction has occurred may be made by the finding of Vincent spirochetes and fusiform bacilli in the sputum (after careful washing).

5. Spirochetal pulmonary or pleuropulmonary gangrene can be prevented by eradicating the primary oral focus.

6. Spirochetal pulmonary gangrene is a distinct entity. It apparently develops as a result of the aspiration of spirochetes and fusiform bacilli from the oral cavity. It may be engrafted on any acute or chronic pulmonary condition, but is usually unrecognized, principally because its symptoms, although characteristic, are attributed to the primary disease. It is a grave complication, and if untreated is frequently the cause of death. Arsphenamin therapy is apparently as specific in this as in other spirochetal infections.

ABSTRACT OF DISCUSSION

Dr. Joseph Sailer, Philadelphia: The beginning of all treatment is diagnosis. Diagnosis involves etiology. When the etiology of the condition is known, we are aware at once, or at a later time, by experiments, whether or not any specific treatment exists. If it does, we apply it and the patient gets well; if it does not, we make an effort to discover the specific treatment. The diagnosis of pulmonary gangrene is not difficult to make in the majority of cases. We may be aided by physical signs, by roentgen-ray studies and by examination of the sputum; examination of the sputum is of prime importance. The specific agent having been discovered (Vincent's spirillum), rational treatment is readily employed. During the war, I had no recognized case of gangrene of the lung, but there were always in the base hospital a large number of cases of Vincent's angina, which we had no difficulty in curing with arsphenamin or similar preparations. Vincent's angina is not unknown among the wealthier class of patients. I have, to the surprise of dentists, found it in the mouths of persons in whom it would never have been suspected. It has occasioned cases of persistent, chronic sore mouth for which there was no previous explanation. I believe that Vincent's angina is not uncommon among all classes, and that probably under certain conditions, such as previous infection or injury, it may develop gangrenous pulmonary conditions. The earlier the diagnosis is made, the greater is the possibility of cure, when the proper treatment is employed. Dr. Berger's paper is interesting and valuable from another standpoint, for it shows how a well known organism may become very serious in some of its manifestations. Entirely apart from the spirochetes of syphilis, we have spirochetal organisms capable of producing a variety of diseases, some of which can be very serious. I have seen two cases of infection with *Leptospira icterohemorragiae*, the organism of infectious jaundice, which experimental workers have found to be a worldwide disease. This has been recently added to the group of spirochetal diseases. It differs from the others in this group in that it is not amenable to treatment by arsphenamin. It is exceedingly important that a more thorough study of the morbidity occasioned by the organisms of the spirochete group should be undertaken, not only to gain information on gangrene of the lung and other serious conditions produced by the spirochetes, but also to discover new forms of disease produced by them.

Dr. Albert E. Roussel, Philadelphia: It is quite possible that cases of spirochetal pneumonias may be more numerous than we think. I have reported two cases that occurred in my service at the Polyclinic Hospital. They were treated in the wards of the hospital in which were kept influenza and bronchopneumonia patients. The physical signs were those seen in the last epidemic of influenza. The sputum was suggestive of bronchopneumonia or influenza. There was a "cranberry" rather than a pink type of pulmonary congestion. The use of neo-arsphenamin resulted in recovery. In both cases the spirochetes were recognized. I think it is possible that a larger number of these cases would be found if we made a systematic search in respiratory cases, particularly if dark field examination was made. On the other hand, it is interesting to note that in my ten years' service at the Eagleville Sanitarium for Tuberculosis, no such cases have come under my observation. In every case a microscopic examination of the sputum should be done to rule out this condition.

Dr. B. S. Kline, Cleveland: In these cases, there is usually pyorrhea or an active lesion in the mouth, with the Vincent organism. In one case, at necropsy, a molar tooth was found filled with a greenish deposit that contained many spirochetes. The organism is best stained by the Fontaine silver impregnation method. It is a gram-negative organism. The majority of the organisms in early pulmonary lesions are of the Vincent type. On a slide they show bronchial and peribronchial infiltration. The lung has a moth eaten appearance. It is mottled with gray-green, foul-smelling masses, containing the Vincent organism. These lesions are scattered throughout the lung, and are often apical, so that they are very easily confused with tuberculosis of the lung, both clinically and roentgenographically. There are no ridges or bridges, as in tuberculosis. The cavities are hollow spheres. The organisms spare nothing, and only a few shreds of tissue are left hanging to the lumen of the vessels. The lung tissue will often show healed, healing and actually gangrenous lesions. An interesting complication in one case was brain abscess; the abscess had the peculiar brownish-greenish-grayish look of the lung lesions, and had a number of spirochetal organisms.

CONTROL OF UTERINE HEMORRHAGE BY THE ROENTGEN RAY *

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The sensibility of the organs of generation to irradiation has been proved by a number of experimenters, and, while exact figures may differ to some degree as to the amount of irradiation required and the results produced, the fact remains that generative cellular elements are the most susceptible of all the cells of the body. It may be safely stated that they undergo a retrograde change from the influence of about one half the amount of irradiation tolerated by other cells. These experimental facts are based on the normal cell and not on cells influenced by local inflammatory or general systemic changes that are usually observed in cases of metrorrhagia or menorrhagia. The question now arises as to what extent irradiation influences cellular elements under these altered conditions.

In the last decade, radium has been employed by many operators for the control of hemorrhage in certain benign diseases of the uterus, with success in many instances, and very few poor results. The usual procedure has been to introduce from 50 to 100 mg. with proper filtration, into the uterine cavity and leave it for from four to eight hours. Any one familiar with the action of radium knows that if the same amount is placed on the skin or mucous surface, there will follow a reaction, which will result in an ulceration of several weeks' duration, and the subsequent formation of a certain amount of scar tissue, and, in some instances, after primary healing has taken place, a secondary ulceration may follow. This secondary ulceration is often troublesome in surface cases, and when produced on mucous surfaces of the vagina or uterus, may be the cause of bleeding that is occasionally observed several months after the application of radium. In some instances following these intra-uterine applications, there has also been considerable general disturbance, which, at times, has been alarming.

With these facts in view, the question of treating a certain number of these cases with the roentgen rays was presented to Dr. Girvin and his staff at the Presbyterian Hospital about four years ago, and they supplied a number of carefully selected cases. Those first treated were women about the time of the menopause with an enlarged uterus, having excessive and prolonged bleeding at their natural menstrual periods. The success in this class led to the selection of patients having small fibroids on whom operations were not advisable. The field was gradually extended until patients suffering from other causes, such as excessive bleeding in anemia, cardiovascular disease and pulmonary tuberculosis, were included. At the same time, the age limit was lowered and it was surprising to note that bleeding in women of from 30 to 35 years was controlled almost with the same ease as those near the age of 50 years, or the natural menopause.

It is recognized that there is nothing new in the treatment of benign uterine conditions with the roentgen rays. Their use was recommended by many authorities fifteen or twenty years ago, but the scarring and skin changes observed after the application of the dosage usually employed deterred most practitioners from recommending their general use. The patients in this group were given extremely mild treatments, and the results produced by this method were equal to those in which heavy dosages had been previously employed. It also appeared possible to obtain rather surprising results in checking bleeding without the usual unpleasant after-effects. In a series of sixty selected patients, only three failed to respond to treatment. In these three, there was absolutely no control of the bleeding, and similar failures have also been observed when a heavy dosage of roentgen ray and radium was employed. In a number, the influence was only partial; in some, lasting for only a few months, while in most of the cases treated, the amount of bleeding was less, usually controlled in proportion to the amount of irradiation given, the idea being to administer that amount of irradiation which would control the bleeding without checking the natural menstrual period. It must be stated, however, that so far we have not been able to produce this result every time it was desired.

The mild character of the treatments is well illustrated by the fact that in the whole series, the pubic hair was retained, but in a few, there was a slight tanning of the skin, which naturally was observed in those cases in which the treatment was repeated several times.

METHOD OF APPLICATION

The body of the patient was covered completely with a leaded rubber sheet or thin lead plates, and four areas over anterior portions of the pelvis, each 2 inches square, were exposed for four minutes, at a 10-inch focal distance, to rays produced by a current of 4 milliamperes, 8 inch spark gap, and filtered by 3 mm. of aluminum. The future applications depended largely on the effect accomplished by the first séance. If there had been very little effect and the hemorrhage was severe, a second application on the back was given at the end of three weeks, provided the condition of the patient warranted it. In making the posterior application, the same technic was used as that employed in the application anteriorly, except that five areas were exposed, three in the center line over the sacrum, and two on the buttocks, in the form of a cross. The next application was repeated in six weeks or two months, if needed, and certain modifications were made according to the requirements of the individual case. If there was the slightest evidence of tanning of the skin over the pelvis, further treatment was withheld, but, in cases in which irradiation was required, the anterior and posterior areas were avoided and four areas were selected on the right and left sides, cross-firing the pelvic organs.

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

While there was no observable dermal change in most of these patients, it seemed strange that a number were more or less nauseated for several days after treatment. This nausea was not the result of the effect of the nitrogen gas poisoning, as the air in the rooms in which the treatment was given was not bad, but appeared to be the local effect of the treatment on the pelvic organs. In one instance, a patient with a fibroid with marked endocardial involvement showed a general reaction after each treatment, suffering from intense nausea and vomiting for a week afterward, so that it was necessary to confine her to bed, and yet there was absolutely not the least sign of any local disturbance on the skin. In fact, a patient treated with radium also complained of the same effect, the details of which will be mentioned later.

Roentgen-Ray Treatment of Uterine Hemorrhage in Sixty Women

Total number of patients treated		60
Metritis local pelvic inflammation	40	
Fibroid tumors	10	
Fibroid tumors, complicated with cardiac conditions	3	
Fibroid tumors, complicated with renal disease	2	
Fibroid tumors, complicated with anemia	2	
Pulmonary tuberculosis, pelvis normal	1	
Pulmonary tuberculosis, endometritis	1	
Renal disease, pelvis normal	1	

NUMBER OF TREATMENTS REQUIRED TO CONTROL HEMORRHAGE

Treatments	1	2	3	4	5 or over
Cases	7	25	10	8	6
Not controlled cases			1		3

Ages of patients	30	40	45	50	55	60	Not given
	4	10	10	14	3	1	18

Hemorrhage controlled, but continued to menstruate	6
Hemorrhage controlled, subsequent roentgen ray	4

The usual phenomena incident to the change of life was observed in many in whom the menses were suppressed, also in several in whom there was only a temporary suppression of menstruation. A few thought the symptoms were unusually severe, and they naturally placed the blame on the irradiation. However, from observation, they did not seem to suffer more than is usual with women undergoing the same change in normal life.

ADVANTAGES OF ROENTGEN RAYS

The advantages of the roentgen rays compared with radium for the control of hemorrhage in these benign uterine conditions appear to be many, with very few disadvantages. They can be easily applied and cause no discomfort, a factor to be considered in the treatment of elderly single women. The treatment consumes less time, the patient is not incapacitated, but can follow her usual vocation, and, while the periods between treatments may be longer, the dosage is more easily controlled, as there is no extensive preparation, the patient is not confined to bed, and she can be more readily induced to submit to treatment. From a physiologic standpoint, it appears to be more rational. The trauma on the uterus is decidedly less, and the intense local reaction usual to radium is avoided, the effect of the roentgen rays being more generally on the pelvic organs.

One patient, not included in this group, was treated with radium applied on the abdomen to simulate the manner of radiation given by the roentgen ray. It required a long time of exposure, as only a small amount was applied in a number of different positions over the lower part of the abdomen. Its routine use is not warranted, except under conditions in which the roentgen rays cannot be conveniently employed. In this instance, 100 mg. was applied over the anterior portion of the abdomen for twenty-four hours. It was moved every two hours and was filtered by 1 mm. of lead and 2 cm. of wood. When it is possible to command large quantities of radium, the time of exposure will be materially lessened.

In two instances, the roentgen ray was used to control bleeding in very large fibroids, in which radium could not be used internally as the os could not be found, and operation was impossible because of the profound anemia. It was necessary in these cases to use many more areas on the abdomen, back and flanks, but the dosage was the same and there was no local disturbance of the skin After the hemorrhage was controlled, the uterus contracted to such a degree that the os could be easily located and radium was then employed within the uterus.

Two patients who failed to respond to treatment suffered from a polypod endometritis, and, as these patients had purely a local endometrial disease, it is evident the amount of irradiation on the uterine body was not sufficient to control the bleeding.

The younger the women, the greater the tendency toward the reestablishment of the menstral function; and, in some of these patients, there was a reestablishment of function without hemorrhage. In others, there was a tendency toward free bleeding, and, in those patients who had a second series of treatments, bleeding was again controlled. There were six patients who continued to menstruate regularly after treatment although the bleeding was checked. In four others, it recurred from one year to three years after treatment.

It may be safely stated that in 75 per cent. all bleeding was checked from the effect of the first series of treatments, but it can easily be seen that more time will be required before exact figures can be obtained on this point.

It is of interest to note that in the majority of these patients, the hemorrhage stopped after a few treatments. Of the sixty patients, in seven, bleeding stopped after one treatment; in twenty-five, after two treatments; in twelve, after three; in eight, after four, and eight required five or more. The majority of those requiring five or more treatments had fibroids. However, one patient, a very small, thin woman, aged 45, suffering from chronic pulmonary tuberculosis, with very free and profuse bleeding at the menstrual period sometimes lasting a whole month, required four treatments. A year later, menses recurred, and, fearing further trouble, a fifth treatment was given, thus placing her in the five-treatment class. Four others were retreatment patients under similar conditions.

The majority of those treated suffered from a metritis modified with more or less ovarian or tubal inflammation. This group numbered forty. There were ten who suffered from fibroid tumors uncomplicated, while three others had severe cardiac complications, two had kidney complications and two, a profound anemia. In the three remaining patients, no local disease could be demonstrated, and bleeding was supposedly the result of a general systemic condition; there was pulmonary tuberculosis in two and a chronic nephritis in the other.

It was surprising to find that many of the patients who complained of pelvic pain and backache were relieved by treatment, no doubt incident to the subsidence of the low-grade inflammatory condition that previously existed in the pelvis. Yet, from the fact that many others expressed themselves as being free from headaches, digestive disturbance and other symptoms complicating these pelvic disorders, one is led to think that there is also a psychologic influence that must be considered.

CONCLUSION

I wish to emphasize the fact that uterine hemorrhage from general systemic or local benign origin, of many different forms, can be controlled by a rather mild roentgen irradiation of such dosage as to leave no perceptible change of the skin over the pelvis, which is used as the port of entrance. In those cases in which a larger amount of irradiation is desired, a larger number of ports of entrance should be used. If this mild irradiation fails, I feel that heavy irradiation will also fail. In some instances, it is possible to control the bleeding without causing a cessation of menstruation. This result, however, is not always obtainable, and in women nearing the menopause, the control of bleeding is likely to lead to a permanent cessation of menstruation.

ABSTRACT OF DISCUSSION

Dr. John Girvin, Philadelphia: I took up some years ago with Dr. Newcomet the possibility of controlling by mild roentgen-ray irradiation cases in which we wanted to retain the menstrual function if possible, or to lose it with as little systemic effect as possible; and secondly, with the hope that in cases of excessive bleeding we might control or stop the bleeding and still retain the child-bearing function. We have not had as yet any case in which we have been able to check the bleeding and yet have a return of menstruation and pregnancy take place. The type of cases that are most effective are those approaching the menopause. In many cases bleeding is excessive at that time, and it is not due to any very distinct pathologic finding. One may find a little symmetrical enlargement of the uterus, or a slight displacement. These cases seem to respond very well. In subinvolution of the uterus when medication has not seemed to affect it, the roentgen ray has had a rather remarkable effect in causing contraction. We have had two or three cases in which menstruation ceased for several months and then returned. In a few fibroid cases, those in which one finds small nodules subperitoneally, we have had some very good results. In cases in which the mucous membrane was particularly affected, such as polypoid endometritis or submucous fibroids, we have had our worst results. I do not think that we can say really that we have had any result in that class of cases. The great advantage in most of these cases is the fact that we get results without the trauma that comes from using radium, and if an operation becomes necessary, as it has in two or three of our cases, it does not complicate the operation. In fact, those cases in which we have operated after the use of the roentgen ray have done unusually well.

Dr. G. M. Laws, Philadelphia: This small dosage irradiation seems to meet the indication for radium without trauma and without hospitalization. To estimate its value from the standpoint of efficiency and safety, I reviewed the records of thirty-seven patients that Dr. Newcomet has treated for the gynecologic staff. They were proved to be benign by curettage or other operation in 70 per cent. of cases, and no case has subsequently been found to be malignant. Of these thirty-seven patients, more than half were under 40 years of age, and none of them subsequently became pregnant. The pathologic conditions were: small fibroids, some with mild pelvic inflammatory disease: metritis, or myopathic hemorrhage, sometimes associated with heart disease or syphilis; certain cases characterized by hyperplasia of the endometrium; and a few cases in which the bleeding followed operation for pelvic inflammatory disease, in which there was conservation of an ovary, and the bleeding was thought to be due to a cystic condition of the ovary. The results were, as a rule, fairly satisfactory; sometimes they were ideal. While the hemorrhage was controlled less positively and less promptly than by the usual effective doses of radium, the treatment seemed to be under better control, and, as a rule, permanent cessation of menstruation did not result unless the woman was old enough for that to be negligible. We feel from this experience that mild inflammatory disease does not act as a contraindication to roentgen-ray therapy as it does to radium, and that therefore in a small fibroid with inflammatory complications, the roentgen-ray treatment would be the treatment of choice. Another point is this, that when operating for pelvic inflammatory disease, it is a comfort to the operator to feel that in the event of menorrhagia later on, he can control it by roentgen ray, and therefore can be a little more conservative than otherwise.

Dr. Henry Schmitz, Chicago: In order to apply the correct treatment in uterine hemorrhages of benign origin, we divide them into four groups: (1) the myomas of the uterus; (2) the hemorrhagic metropathies or functional bleedings; (3) the hemorrhages due to inflammatory conditions of the uterus and adnexa and displacements of the uterus, and (4) the symptomatic bleedings which are secondary to other primary conditions, as tuberculosis, heart disease and kidney disease. The indications for treatment are based entirely on this grouping. We invariably precede the radiation treatment with a dilation of the cervical canal and a curettage, for it is an impossibility to know whether there may not be a hidden malignancy in these conditions. The cases in Group 3 are never treated with radiation, because if we remove the cause the hemorrhages should cease. Intramural myomas of the uterus, free from degeneration and complicating diseases of a size of a ten or twelve weeks' pregnancy, are treated with radium in very small doses to control the bleeding, but not to arrest menstruation. We use an intra-uterine applicator which has a diameter of 1 or 1.5 cm., so that we really use distant application of radium and not contact application. We give only from 200 to 300 mg. element hours in the majority of these cases to control the excessive bleedings, and have the satisfaction that these patients continue to menstruate. In the essential hemorrhages we distinguish between the hemorrhages occurring at the beginning of menstrual life and those at the cessation of menstrual life. These are the two periods in which they usually occur. In the former, we wish to arrest the bleeding but under no circumstances stop the processes of menstruation and gestation. Here again we use very small doses of 200 mg. element hours and wait at least three months before resorting to a second application, which is rarely necessary. The menopausal bleedings are treated the same as the myomas. In the symptomatic bleedings we apply the radium for the control of the bleedings in case the hemorrhage is so severe that it contributes to the clinical process of the primary disease, such as tuberculosis or heart disease. The roentgen rays are used in very large fibroids, when we surmise that the administration of the radium will probably not control the bleeding or the growth, since the action of radium is purely local. Here we desire the so-called homogeneous penetration of the entire tumor with the roentgen ray. On the other hand, if we should have to use the roentgen ray in the essential or symptomatic bleedings, then we can use a very simple method of calculating the dose. We know that the ovaries lie from 6 to 7 cm. beneath a line drawn through the anterior superior spinous process of the ilium. If we wish temporarily to arrest the function of the ovary, i. e., destroy the maturing follicles, we should apply from 15 to 20 per cent. of an erythema skin dose at the ovaries. After six or seven months, the remaining primary follicles will have matured and menstruation is reestablished. On the other hand, if we wish completely to destroy the function of the ovaries, then we should apply a dose of at least from 30 to 35 per cent. of an erythema dose, which will destroy the primary follicles. This effect has been termed roentgen-ray castration. The point I wish to emphasize particularly is that we should never treat uterine hemorrhages unless we have made a diagnostic curettage to exclude the presence of malignancy.

Dr. B. H. Orndoff, Chicago: The complication of a fibroid by an inflammatory condition in the pelvis is very essential in order to determine the proper character of treatment to be applied, and in this diagnosis I wish to emphasize the importance of pneumoperitoneum in pelvic diagnosis and the use of a peritoneoscope for making direct observations in the pelvis. With pneumoperitoneum or with the abdomen filled with a gaseous medium, the vacuum in the abdomen is released and the organs can be displaced from their usual positions. Those fixed in a definite position can be determined, and by fluorescent screen observations and by films made of the pelvis in the proper position, data can be secured with regard to pregnancy and for the presence of tumors and other pathologic conditions that can scarcely be secured in a positive way by any other method. With the abdomen filled with a gaseous medium, an instrument which we have termed the peritoneoscope, which is a modified Jacobæus thoracoscope, can safely be inserted in the abdominal wall, and with the patient in the proper position, with the hips elevated above the shoulders, so that the organs will fall out of the pelvis (those that are not fixed in that position) an inspection of the pelvic organs often serves a purpose in differentiating pathologic conditions at this point, which can not be secured short of a laparotomy or surgical examination. I believe that the importance of these examinations should be emphasized, and large institutions where numbers of cases are handled should have these available methods of diagnosis.

Dr. Dudley Mackey, Bloomfield, N. J.: A woman, aged about 45, was told she had a fibroid of the uterus. She was referred to a specialist for radium treatment. Because of the position and size of the fibroid, radium was contraindicated, and a report was made that the use of the roentgen ray would cause a necrosis of the intestine in this area. I desire to know whether treating a patient under such circumstances would endanger the intestinal tract when deep therapy is used. The patient was later operated on and died.

Dr. Oscar L. Norsworthy, Houston, Texas: Though tumors projecting into the uterine cavity are generally accepted as operative cases, there are some cases of uterine hemorrhage caused by the presence of nonmalignant growths, both intra-uterine and extra-uterine, that are safest treated with radium. Knowledge of intra-uterine conditions are next in importance to that of extra-uterine pelvic complications in deciding for or against radium and the technic of its application. A fairly accurate idea of the shape and size of the uterine cavity can be arrived at by careful use of a uterine sound, and the study of scrapings from the cavity will differentiate the type of growth. Long nonflexible applicators cannot be placed so as to conform to a tumor projecting into the uterine cavity, nor can they be placed so that a tumor situated on the fundus and one on the body can be irradiated at the same time.

Dr. John S. Derr, Atlanta, Ga.: I treated the first case of essential uterine hemorrhage treated by irradiation in Atlanta, Ga., in 1914, with excellent results. I used the old gas water-cooled tube with the short focal distance and only leather filtration. The woman was 40 years old at the time, and she is still young looking. Since that time I have treated more than 100 cases of uterine hemorrhage and fibroid tumors. I have had fibroids reaching up nearly to the umbilicus practically disappear under roentgen-ray treatment. It is certainly a pleasure to hear Dr. Newcomet favor the roentgen ray rather than radium in the treatment of these conditions. I have never yet failed to stop a case of hemorrhage by roentgen ray, and have had three previously treated with radium. Dr. Pfahler some years ago reported a case of fibroid tumor that he treated with roentgen ray and the woman afterward married and came to a successful pregnancy and was delivered of a normal child.

Dr. William S. Newcomet, Philadelphia: In practically all of these cases curettage was done except in those in which a cardiac or a lung condition would not permit anesthesia. Answering Dr. Mackey, in regard to the patient who died, what condition did they find at operation?

Dr. Mackey: Uterus adherent to the bladder, a large nonmalignant fibroid.

Dr. Newcomet: One cannot for one minute conceive why the case could not be treated, and safely treated, too. With mild irradiation, radium might have been employed, but it cannot be denied that the roentgen ray would have been safer. Dr. Schmitz called attention to the fact that when radium is placed in the uterus for the treatment of these tumors, it is not expected that this is going to radiate the tip of that mass. That was just the point that I brought out in the paper. With radium, it is a close-up radiation. We all know that the radiation spreads out inversely as the square. Well, naturally a comparatively short distance rapidly lowers the effect of the radium, and, when there is an application as shown in the charts of Dr. Norsworthy, the amount of radiation on the inner side of the tumor and the amount of radiation on the outer edges differ enormously. Therefore, we cannot believe that all the retrograde change of the tumor is entirely due to the radiation of the tumor mass. It is due to the effect of the radiation on the endometrium of the uterus. The retrograde changes in a pelvic mass, when the roentgen rays are used, are due to the changes produced in the pelvic organs. One is a general reaction on all the pelvic organs, while the other is a purely local reaction on the endometrium of the uterus.

DUODENAL ANTIPERISTALSIS

FURTHER OBSERVATIONS *

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That the peristaltic wave in the gastro-intestinal tract is normally in an analward direction is, I believe, axiomatic, with the exception of the proximal portion of the colon. Here antiperistalsis has been so commonly observed that it is certainly accepted as the usual, if not the normal, procedure.

A perusal of the literature on antiperistalsis in the duodenum offers so many disappointments that one approaches this subject with some trepidation. It is, of course, a matter of common knowledge that the peristaltic wave reverses itself in obstructive lesions at or near the duodenojejunal junction, whether the lesion is intrinsic or extrensic to the intestine. Cole and Holzknecht, independently of each other, experimentally produced this in 1910 by mechanical blocking of the lumen. Joseph and Metzler,[1] in rabbits, and Wheelon and Thomas,[2] in dogs, studied the motility of the duodenum by means of balloons anchored in the duodenum and antrum, but they observed no antiperistalsis. Thorning and Smith[3] observed antiperistalsis in a dilated duodenum due to extensive adhesions in the ileocecal region, and they deplore the paucity of literature on the subject. Alvarez,[4] in his extensive work, has observed retrograde peristalsis in all portions of the gastro-intestinal tract, including the duodenum, and

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* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Joseph and Metzler: Am. J. Physiol. **27**: 31, 1910.

[2] Wheelon, H., and Thomas, J. E.: Am. J. Physiol. **59**: 72-96 (Feb.) 1922.

[3] Thorning and Smith: Tr. South. Surg. A. **30**: 176-185, 1917.

[4] Alvarez, W. C.: Reverse Peristalsis, J. A. M. A. **69**: 2018 (Dec. 15) 1917.

has found colonic contents on the back of the tongue. He describes the retrograde rushes quite clearly, while Henderson [5] of Toronto doubts the existence of such a thing, saying: "A true reverse peristalsis, I believe, has never been observed."

Arens [6] has observed retrograde peristalsis at this point more than a hundred times in a series of approximately 300 gallbladder cases, and attributes the phenomenon to an associated duodenitis. Paul Eisen [7] has observed the condition only nine times, each with a different existing pathologic condition, and remarks that "the absence of regurgitation is especially noticeable in cases of diseased gallbladder where one would expect to find it." My own observations would lead me to take the point of view just expressed.

In a recent preliminary report,[8] I presented a series of thirty-five cases of duodenal regurgitation, ascribing its causes to the presence of hookworms with the associated duodenitis. With the original report as a basis, it is now my purpose to review the already reported cases together with a large number observed since that report and to present additional findings.

PATHOLOGY

In describing the changes in hookworm disease, Darling [9] states that the pathologic changes due to hookworm are caused in part by oozing of blood from the worm bites (hemorrhage), and by the bacterial invasion of the mucosa. Hemorrhage of greater or lesser severity always accompanies *Ancylostoma duodenale,* with its formable hook-mouthed parts, and the worms are seen to have blood in the intestinal tract. At necropsy, in severe cases, the mucosa of the small intestions is dotted over with minute worm bits, some of which have blood stained margins, indicative of the source of the blood that bathes the mucous surface near by.

In mild infections, the lesions consist of minute tears in the mucous membrane and of small hematomas, or blood cysts, in which adult worms may occasionally be found. Solitary ulcers 2 cm. in diameter may arise on these blood cysts, for they communicate with the lumen of the intestine. In severe infections there is a bacterial invasion of the tunica propria of the mucosa, their entrance probably effected through the worm bite. A chronic inflammatory reaction follows the invasion, which would seem also to be the cause of the peculiar intermittent fever characteristic of severe infections.

GENERAL CONSIDERATIONS

In the first few instances in which antiperistalsis was seen, little significance was attached to it, and no explanation was offered beyond the statement that it was commonly seen in obstructive lesions at this point. Its observation in two brothers on the same day, in whom obstruction obviously did not exist, and for which no pathologic reason could be ascribed, served to stimulate my interest and gave impetus to my investigation. The laboratory reported a marked eosinophilia in the two patients and gave a positive report for hookworm ova in the stool. It occurred to me that the presence of the worms, together with the associated duodenitis and ulcer formation, might be the explanation. Blood and stool examinations were at once determined in all patients who presented this condition and with whom the proper cooperation could be secured.

Retrograde peristalsis, as I have observed it, has commonly been seen in young subjects, usually in the second and third decades. The examination is not other than that of the usual barium meal procedure employed in routine gastro-intestinal work. The patient is observed in the upright position and, since a barium filled stomach displaced backward by pressure could obstruct the lumen of the intestine, the gloved hand is never used for manipulation of the stomach, it being allowed to empty itself unaided. For obvious reasons, antiperistalsis in the prone position has been disregarded. When pylorospasm prolongs itself unduly, the patient is allowed to sit in an anteroom until its disappearance.

The roentgen-ray examination shows little or no cardiaspasms, although hyperperistalsis accompanied by considerable pylorospasm is the rule. It will be observed that the behavior of the stomach is not unlike that observed in the commonly seen duodenal ulcer of peptic origin. In addition, the spasmodic manifestations extend to the duodenum itself, the food passing slowly and apparently with some difficulty to the duodenojejunal juncture, where it pauses and passes backward to the bulb, after which it oscillates between these two points from two to eight times, or, in rare cases, even more. The stomach frequently shows some residue at the six hour examination while the head of the meal is usually at or beyond the splenic flexure.

The antiperistaltic wave in this condition is a clear cut, copious discharge backward to the bulb, appearing not unlike a fluid propelled from an ordinary piston syringe, and is not to be confused with the antiperistaltic rushes described by Alvarez, in which he observed that the duodenal contents continued their analward motion, while a fleeting wave passed in the opposite direction, much as a ripple might pass upstream on the surface of a moving column of water.

Antiperistalsis has been noted in a total of 102 patients, with positive stool reports for hookworm ova in ninety-five cases (93 per cent.). Of the seven cases reported negative for ova, two were dismissed with a single stool examination, which, in the light of subsequent investigation, I consider insufficient evidence; cancer of the head of the pancreas accounted for one; acute pancreatitis for another; enlarged tuberculous lymph nodes with external pressure for another, and cholecystitis for the remaining two.

REPORT OF CASES

CASE 1.—J. J., a man, aged 32, whose family history was of no particular interest, had been treated by his own physician "all his life for stomach trouble." The patient was poorly developed and poorly nourished. He weighed 121 pounds (55 kg.). The sclerae were yellow, and the skin had a dry, leathery appearance. The remainder of the physical examination was negative.

A barium meal was given. One and one-half hours' waiting was required before the stomach could be induced to begin emptying, at which time a normal stomach and cap were observed with hyperperistalsis and hypermotility. Antiperistalsis in the second and third portions of the duodenum were pronounced. The roentgen-ray diagnosis was: intestinal parasites. The laboratory report showed: red blood corpuscles, 4,000,000; eosinophils, 9. The Wassermann reaction was negative. The malaria test was negative. The stool contained a large number of hookworm ova.

The patient received five treatments of thymol; his digestive disturbances have disappeared; a gain of 14 pounds (6.4 kg.) was observed by his physician, and the man is now back at work apparently well. A reexamination showed no antiperistalsis or other pathologic condition.

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5. Henderson, V. E.: Canadian M. A. J. 13: 560 (Aug.) 1923.
6. Arens, R. A.: Personal communication to the author.
7. Eisen, Paul: J. Radiol. 4: 388 (Nov.) 1923.
8. Henderson, W. F.: Antiperistalsis in the Duodenum: A Presumptive Sign of Intestinal Parasitosis, J. A. M. A. 84: 493-494 (Feb. 14) 1925.
9. Darling, S. D.: International Health Board Report.

CASE 2.—Miss C. G., aged 17, whose family history was negative and who had had the usual diseases of childhood, with no serious illness, complained of inability to sleep; loss of considerable weight; vomiting of food at irregular intervals, and a slight cough, accompanied by such a profound depression that it became necessary for her to leave school. A physical examination by her physician, aside from a moderate anemia, was negative. The stool showed no ova of any kind. A gastro-intestinal study was done by me. No pathologic change was observed, with the single exception of antiperistalsis in the second and third portions of the duodenum. In spite of the previous stool examination, parasitosis was suggested to the clinician. Magnesia magma was given; the laboratory reported a stool positive for hookworm. Two weeks after carbon tetrachlorid treatment, the patient reported a gain of 4 pounds (1.8 kg.), normal sleep and no depression. She returned to school apparently well. There was no opportunity to observe this patient roentgenologically following the treatment.

CASE 3.—Miss R. L. W., aged 21, whose family history was of no interest, had had "stomach trouble" for some years. Her family stated that "spells" of some kind were of common occurrence, and were increasing in frequency. Examination showed her to be poorly developed and poorly nourished, weighing 98 pounds (44.5 kg.). Anemia was evident on casual observation, and the patient appeared listless. The hemoglobin was 60; there was no eosinophilia; the stool was negative for parasites; the Wassermann reaction was negative; the urine was normal, and gastric analysis was not made. The appendix had been removed two years before examination.

The physician requested a roentgen-ray study. The chest was normal; cardiospasm was absent. The stomach, considerably dilated, lay in the pelvis with no waves appearing at the end of half an hour. An hour later, no food had passed through the pylorus. As the patient stepped from the fluoroscope she was seized with an epileptiform attack, which lasted for three or four minutes, immediately after which the stomach began emptying itself. Antiperistalsis of the second and third portions of the duodenum was greatly in evidence. There was some retention in six hours. No other pathologic changes were noted.

The probability of parasites was suggested to the clinician, and after two examinations the laboratory reported positive stools for *Uncinaria*. The patient received three treatments for this condition before the stool was free from ova. She gained in weight. The "stomach trouble," together with the "spells," disappeared, and her physician tells me that she is well.

CASE 4.—J. S. L., a man, aged 30, was operated on in 1919 for appendicitis, with only temporary relief. The weight loss since that time had been 12 pounds (5.5 kg.). Recently, attacks of indigestion had been marked. Sour eructations were common and he was continually swallowing and belching air as though attempting to "scatch himself." He had become despondent over his condition. A recent roentgen-ray examination in a neighboring city revealed antiperistalsis in the duodenum probably due to adhesions about the old appendix scar, and he had come in for an operation for this condition.

He was referred to the roentgen-ray department. The antiperistalsis noted by the other physician was visible at my examination. The laboratory reported the stool positive for the parasites. Appropriate treatment was instituted, and two and one-half months later the patient reported himself as well. No operation was done. Reexamination shows no antiperistalsis, and the laboratory reports show no ova in the stool.

CASE 5.—M. B., a girl, aged 10, had always been sickly; she was unusually bright in school, but subject to constant attacks of digestive disturbances and acidosis. Her physical condition did not allow her to run and play with the other children. A diagnosis of cyclic vomiting had been made by two pediatricians, and of congenital pyloric stenosis by a third. An appetite for inedible articles (hair, bits of cloth, etc.), had been noted by her parents, and lately she had developed the habit of swallowing and belching air.

I was requested to look at the stomach for a possible bezoar. A roentgen-ray examination showed no foreign body in the stomach, and obstinate pylorospasm lasting thirty minutes, during which the child vomited once. There was exaggerated antiperistalsis in the duodenum. The examination was otherwise negative. The suggested diagnosis of intestinal parasites was given. The laboratory report showed: hemoglobin, 70; red blood corpuscles, 4,500,000; eosinophils, 12. The stool examination revealed no parasites. The second stool examination after magnesia magma was given revealed hookworm ova. Examination of the stool was reported negative after four months of active treatment. The vomiting had ceased; the digestive disturbances with the abnormal appetite had disappeared. The child is well, and reexamination gives no roentgen-ray evidence of any pathologic condition.

ECONOMIC CONSIDERATIONS

Considerable interest has been shown of late in intestinal parasites throughout the United States. The constantly shifting population, together with the emigrants from the warmer climates, have made this more than a local problem, although it is naturally of more interest and the effects are more widespread along our Southern border. A zone of infection surrounds the earth from about 38 degrees north to 34 degrees south latitude.

In Brazil, Smillie and Darling[10] estimated that the working efficiency of the men on the coffee fazendas, taking fazendas as a whole, was one-fourth less than that of otherwise normal, noninfected men. This decreased production was attributed almost entirely to the hookworms they were carrying. The psychologic board of the U. S. Army officially reported that in the case of 10,000 men at Camp Travis, Texas, tests indicated the mentality of white men with hookworm disease to be about 33 per cent. inferior to the mentality of white men without it.

Williams[11] states that a conservative estimate of the hookworm disease in Harrison County, Miss., in January, 1918, was 20,000 cases in a total population of 35,000. Basing an estimate of diminished production of one-third the figure given above, this would be the equivalent of 6,000 nonproducers in this one county.

COMMENT

I have examined certain of the patients in this series, after treatment for uncinariasis, with the result that those who still showed the phenomenon were sent back for further treatment, at which time multiple stool examinations still showed the presence of ova. In those cases in which, after treatment, the phenomenon had disappeared, it is interesting to note that repeated stool examinations have shown no ova.

The criticism that the roentgen ray has become omnivorous is not a just one. As physicians first, interested in disease, and only later as interpreters of shadows in terms of pathologic changes in particular organs, it is incumbent on the roentgenologists to assist the clinician in whatever way they can. The peptic ulcer commonly seen in the duodenum, with its associated duodenitis, is responsible for the structural and spasmotic changes in the bulb which even a tyro is wont to associate with its true pathology. It is not contended that the hookworms are solely responsible for duodenal antiperistalsis, but it is not taxing our credulity too far to believe that ulcers of this etiology and in this location are able to produce phenomena by which their presence can be detected. It is not unthinkable that a disease which can and does produce clinical manifestations, varying from a mild anemia and indigestion to epilepsy, would make itself manifest when the site of the pathologic changes—the duodenum—is visualized by the barium meal method. In my opinion, hookworm infection must be excluded by careful laboratory work before duodenal antiperistalsis can be attributed with safety to other pathologic conditions.

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[10] Smillie and Darling: International Health Board Report.

[11] Williams, D. J.: New Orleans M. S. J. 77: 360 (March) 1925.

Corner North State and Manship streets.

ABSTRACT OF DISCUSSION

Dr. L. A. Fortier, New Orleans: This paper is especially valuable to the physicians of the South. The work was made possible by the high percentage of infected persons in Mississippi. The conclusions are very logical. When hookworms are present in patients with abdominal complaints, antiperistalsis is seen. When the patient is freed from parasites, the symptoms, including antiperistalsis, disappear. This happening in all cases proves to me that the parasites are the cause of the reverse peristalsis. Roentgenologists can be of help by asking for feces examinations in cases of antiperistalsis in the duodenum not accounted for by other well known pathologic conditions, as adhesions, gallbladder disease or obstruction of tumors.

Dr. L. T. LeWald, New York: The subject interests me very much, having studied hookworm as a pathologist in the tropics many years ago, and I am rather surprised to find that the control of the situation at the present time is so poor when the etiology is so well known. I had supposed that hookworm was a thing of the past, but apparently it is well to the front. I hope that in his conclusion Dr. Henderson will give us a little more definite way of recognizing the antiperistalsis. I understood him to say that it was not to be seen in the upright position.

Dr. W. F. Henderson, Jackson, Miss.: In answering Dr. LeWald, I am sure that he misinterpreted what was said. My paper stated that I consider this of importance only when the patient is standing erect, and that for obvious reasons I have disregarded antiperistalsis with the patient in the prone position. I should like to call attention to one particular phase of this. I do not suppose that the physicians in the North and East ever have any trouble with their appendix cases—they probably cure all of them—but in the South most of our patients with chronic appendicitis have just about as much trouble after operation. I cited one case in which a man had been operated on for chronic appendicitis and I would urge that we make sure that when we consider a case as chronic appendicitis we rule out other things. The hookworm is responsible for a very large number of intra-abdominal symptoms; that is, pain and what not. It is very easy to confuse these symptoms with a great many other conditions, and we should at least go very carefully into the case before attributing chronic abdominal pain to an appendix.

Social Worker's Function.—The social worker's function is chiefly therapeutic. A failure to recognize this fact has sometimes resulted in making her chief duty that of financial investigation for the purpose of excluding patients who are ineligible for dispensary care. While in the course of her work she may obtain information regarding finances that is of value to the administrator, obtaining this information should not be her main objective. Not only does this tend to lessen the value of her real purpose but it places upon her a duty that belongs elsewhere. It is likely to place her in a false position with the patient—it may lose for her the friendly relationship with him that is essential for the successful execution of her work. The investigation of the patient's financial resources after a diagnosis has been made when the physician is faced with the problem of prescribing treatment that may be beyond the patient's means is distinctly another matter. Certain adjustments in the home requiring the expenditure of money may be necessary before treatment can be completed. The social worker in making the type of financial investigation that rounds out the physician's effective treatment of the case is not only within her province but she is performing one of her distinct functions.—*Hosp. Social Service* **12**:138 (Sept.) 1925.

OCULAR PHENOMENA PRODUCED BY TEMPORAL LOBE TUMORS *

WALTER I. LILLIE, M.D.
ROCHESTER, MINN.

A detailed study of the ocular changes produced by temporal lobe tumors has been made in order to ascertain the frequency of correct localization from an ophthalmologic standpoint. Cushing's [1] report that perimetric field defects in temporal lobe lesions were of paramount diagnostic value, localizing definitely the site of thirty-three of thirty-nine tumors of the temporal lobe, was a further stimulus to this study.

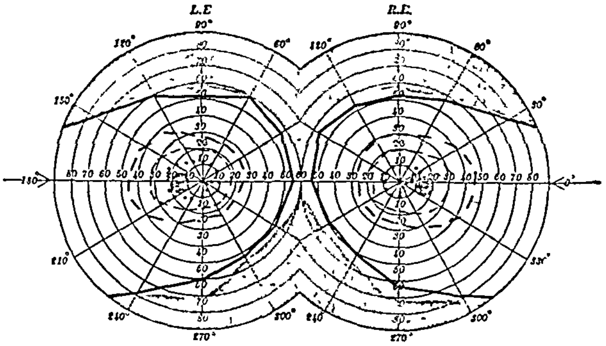

Fig. 1.—Vision right eye, 6/4; left eye, 6/4. Perimetric fields normal for form, right homonymous lower quadrant defect for green; bilateral enlargement of the blind spots.

In a series of 168 cases of certified cerebral tumors examined in the Mayo Clinic during the last five years, sixty were located in the temporal lobes. In all but three of these cases, operation was performed; and in these three, the location was diagnosed correctly, as proved by necropsy. There were fifty-three cases of infiltrating gliomas, three of dural endotheliomas, two of calcified hematomas, and two of angiomas.

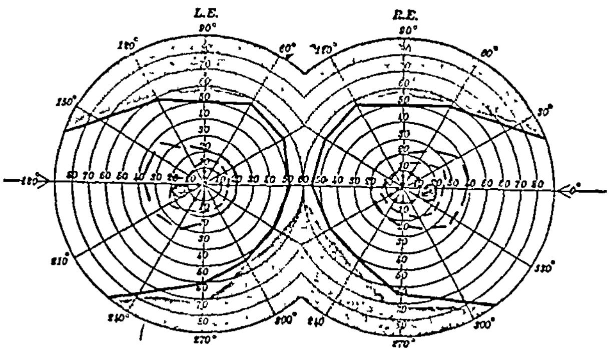

Fig. 2.—Vision right eye, 6/6; left eye, 6/6. Perimetric fields normal for form, left homonymous upper quadrant defect for red and green; bilateral enlargement of the blind spots.

OCULAR CHANGES

The ocular changes may be divided into four groups: (1) changes of visual acuity; (2) changes of the optic disks; (3) changes in the perimetric fields, and (4) oculomotor changes.

Changes in Visual Acuity.—The vision was normal in thirty-two cases, and not determined in nine. In the remaining nineteen cases there was visual disturbance in one or both eyes; in four of these cases there was a history of poor vision in one eye. The vision was moderately reduced in two cases in which the fundi were normal, and in one in which there was a mild pallor of both disks. The vision in these three cases was improved by proper glasses In the remaining twelve cases, the visual decrease was probably due to a beginning secondary optic atrophy, resulting from the bilateral choking of the disks.

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* From the Section on Ophthalmology, the Mayo Clinic.

* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Cushing, Harvey: Distortions of the Visual Fields in Cases of Brain Tumor, VI, The Field Defects Produced by Temporal Lobe Lesions, Tr. Am. Neurol. Assn., 1921, pp. 374-423.

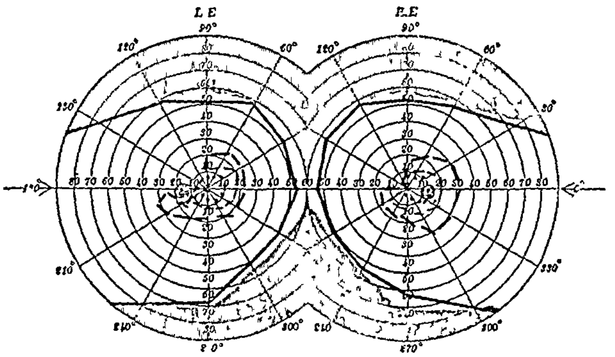

Fig. 3 —Vision right eye, 6/7; left eye, 6/5 Perimetric fields normal for form, left homonymous upper quadrant defect for blue, red and green; bilateral enlargement of the blind spots

Changes in the Optic Disks.—In forty-five cases there were bilateral choked disks ranging from one-half to 7 diopters swelling. The choking of the disk was higher on the contralateral side as often as on the homolateral side. The choking of the disk was equal in twenty-four cases. In one case there was definite bilateral secondary optic atrophy without edema, at first examination. In thirteen cases the fundi were normal, and in one there was mild pallor of both disks. In all the cases examined, except those in which the fundi were normal and one in which there was mild pallor of the disks, enlarged blind spots were noted.

Changes in the Perimetric Fields.—The field changes may be classified into (1) normal fields, (2) homonymous quadrant defects for colors, and form and colors, and (3) homonymous hemianopia for colors, and form and colors.

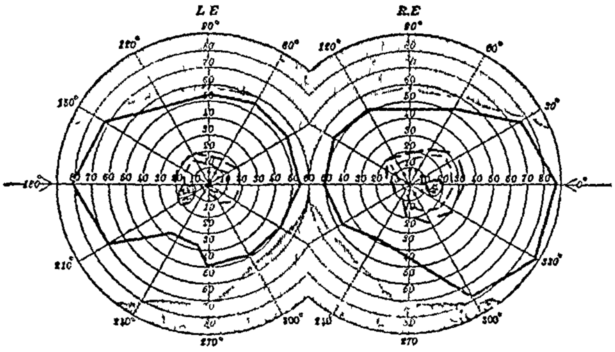

Fig 4 —Vision right eye, 6/7; left eye, 6/10 Left homonymous lower quadrant defect for form and colors, bilateral enlargement of the blind spots

1. In eight cases the perimetric fields were normal, both for colors and for form. In three of these the blind spots were enlarged, owing to the choking of the disks; the other five had normal fundi. All the eight cases were infiltrating gliomas, except one, which was a calcified hematoma.

2. There were ten cases of quadrant defect for one or more colors, the defect being in the upper quadrant in six cases, and in the lower quadrant in four. Homonymous quadrant defects for form and colors were present in fifteen cases, nine in the lower quadrant and six in the upper (Figs. 1 to 6).

3. Homonymous hemianopia for colors with form fields normal was present in three cases, while a complete homonymous hemianopia for colors and form was found in fifteen cases. In one case there was a complete macula preservation (Fig. 7 to 9).

Perimetric fields were not obtainable in nine cases because of the mental condition of the patient. In eleven cases of definite aphasia, nine homonymous quadrant defects for form and colors were accurately charted by a simple procedure. Instead of relying on the patient to tell when the object or color is seen, he should be instructed to tap the table as soon as he sees the moving object or the color just named. In this manner a very accurate defect can be elicited if present. Such defects can be verified by repeated examinations.

In this series of sixty cases, seventeen were definitely localized by the perimetric field defects only, as the neurologic findings were only general in character. In contrast, fifteen cases were definitely localized by the neurologic examination, while the ophthalmologic examination was of no localizing value. In six of these cases, the fields were normal; and in nine, the fields were not obtainable owing to the mental condition of the patient.

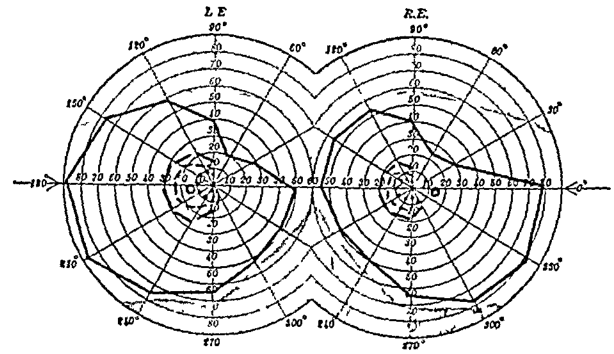

Fig 5 —Vision right eye, 6/10; left eye, 6/12. Right homonymous upper quadrant defect for form and colors; blind spots normal; fundi normal

Definite localization as to the site of the lesion was possible in forty-three of the sixty cases, from definite perimetric field defects alone, while definite localization was possible in forty of the sixty cases from the neurologic examination alone.

Oculomotor Changes.—The oculomotor changes were less common. There was paresis of the left abducens in six cases, ptosis of the left upper lid in two, partial external and internal ophthalmoplegia in two, and convergence weakness in three. All the oculomotor changes, except the convergence weakness, were located on the left side, but the tumors were equal on the two sides. The cause of this is not known, as the tumors were nearly equally divided, thirty-four in the left lobe and twenty-six in the right.

NEUROLOGIC CHANGES

The neurologic findings, in order of frequency, are: generalized convulsions, partial hemiplegia, transitory numbness of arm or leg, aphasia, jacksonian convulsions, unilateral incoordination, uncinate attacks, and hallucinations of taste and smell. None of the cases presented visual hallucinations of any type.

ROENTGENOGRAPHIC CHANGES

Nothing of localizing value was shown from the roentgenograms of the head, except in the three cases of endotheliomas and in two of calcified hematomas. There were fifteen cases of enlarged sella turcica with and without erosion of the posterior clinoid processes. The remaining cases were negative. The enlargement of the sella turcica is of no clinical importance when associated with bilateral choked disks, except that it is another sign of increased intracranial pressure. Although the enlargement is present in 25 per cent. of these cases, it is also present in about 50 to 60 per cent. of cases of lesions of the posterior fossae, especially the cerebellar. In chiasmal lesions, the sella turcica is enlarged and eroded in about 65 per cent. of the cases, but a lesion in this region is rarely associated with a bilateral choked disk.

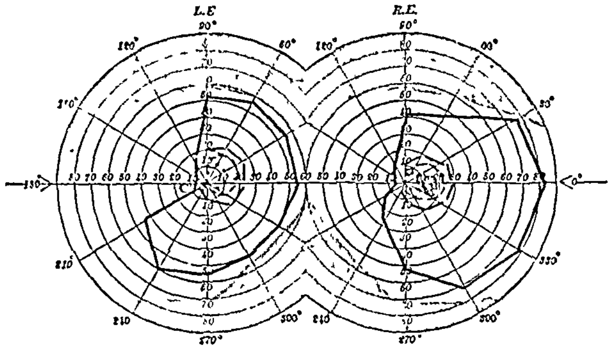

Fig. 6.—Vision right eye, 6/20; left eye, 6/10. Partial left homonymous hemianopia for form; complete homonymous hemianopia for colors; right blind spot enlarged.

SUMMARY

The ocular changes characteristic of temporal lobe tumors are found in the perimetric fields. In the early cases, the homonymous quadrant defects either for colors or for form or for both are common enough to be of great clinical significance, especially if these defects are associated with bilateral choked disks. This was true in forty-three out of fifty-one cases in the series in which the perimetric fields could be charted. No scotomatous defects were found.

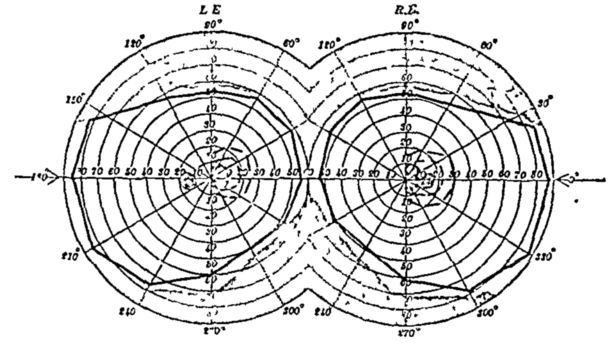

Fig. 7.—Vision right eye, 6/60; left eye, 6/30. Perimetric fields normal for form, left homonymous hemianopia for colors; bilateral enlargement of the blind spots

These findings agree closely with those published by Cushing in 1921, except for the absence of visual hallucinations in my series of cases. If the homonymous quadrant defect is added to the syndrome of Kennedy,[2] a definite syndrome can be established for temporal lobe lesions.

CONCLUSIONS

1. Temporal lobe tumors are common (sixty out of 168 verified cerebral tumors).

2. Homonymous quadrant defects, either for colors or for form, associated with bilateral choked disks, are characteristic of this location (forty-three out of fifty-one cases).

3. The choking of the disk was higher on the contralateral side as often as on the homolateral side.

4. Visual hallucinations were absent.

5. An ocular syndrome could be established for early temporal lobe tumors; namely, normal visual acuity, bilateral choked disks, and homonymous quadrant defects either for colors or form.

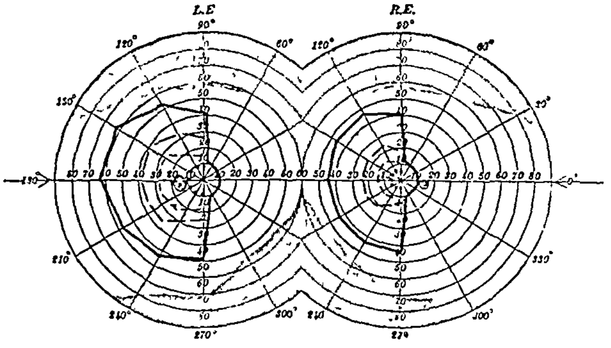

Fig. 8.—Vision right eye, 6/30; left eye, 6/15. Right homonymous hemianopia for form and colors, with preservation of both macula; left blind spot enlarged.

ABSTRACT OF DISCUSSION

Dr. Emory Hill, Richmond, Va.: Localization of tumors of the brain was facilitated by the studies of Foster Kennedy published in 1911, and again by Cushing in 1921. The former presented an accurate picture of temporal lobe tumor with one valuable piece of evidence omitted; namely, the homonymous defects in the visual fields especially prominent in lower or upper quadrants. The latter added this additional evidence, made possible by the use of very small test objects employed to outline the fields. As a result, it cannot be said that tumors of the temporosphenoidal lobe are the most difficult brain tumors to diagnose. Our attention has been drawn too strongly to the cerebellum, because of choked disks, and to the occipital lobes, because of homonymous defects. The combination of these two findings should point to a temporal lobe as the source of a space restricting lesion increasing the intracranial pressure and impinging on the geniculocalcarine visual fibers. Other symptoms of importance are the loss of the abdominal reflex on the opposite side, visual hallucinations, and uncinate attacks; but these should not be overemphasized. Dr. Lillie's contribution suggests that temporal lobe tumors may be much more frequent than we have believed; he finds sixty in a series of 168 cases of certified

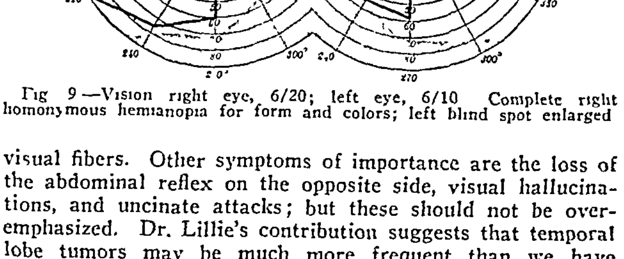

Fig. 9.—Vision right eye, 6/20; left eye, 6/10. Complete right homonymous hemianopia for form and colors; left blind spot enlarged

cerebral tumors, as compared to fifty-nine in Cushing's series of 276 cases. Visual fields were of great value in both these series, sometimes constituting the determining factor in localization. Uncinate attacks seem to have been of much less importance, while visual hallucinations were absent in Dr. Lillie's series. Cushing found them in thirteen cases. They are of quite striking character when they do occur, and can be distinguished from the vague sensations of light and colors noted in occipital lesions, being concrete images projected in the blind half of the field of vision. Several impressions have been gained from a series of these cases in the department of neurologic surgery, which I have had opportunity to study through the kindness of Dr. C. C. Coleman. The diagnosis, or even the suspicion, of brain tumors is not yet in the minds of the profession as a whole; we are seeing the cases too late. Accurate visual fields are impossible in many cases because of the mental state of the patients. When fields can be charted with any approach to accuracy, they usually show the homonymous quadrant defects which Dr. Lillie describes. Of equal importance, cases of tumor, which we have some reason to expect to find in the temporosphenoidal region, prove to be elsewhere when choked disk and field defects are absent. Unquestionably, the presence of homonymous defects and choked disks is strong evidence of tumor or its equivalent in the temporal lobe. Encroachment on the angular gyrus in left sided tumors furnishes additional valuable evidence through the speech difficulties produced. The value of ventricular puncture followed by air injection is worthy of mention. Compression of a ventricle by a tumor on the corresponding side, and obstruction preventing the passage of air from one side to the other, may assist materially in the diagnosis.

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[2] Kennedy, Foster: The Symptomatology of Temporosphenoidal Tumors, Arch. Int. Med. 8: 317-350 (Sept.) 1911.

Dr. G. E. de Schweinitz, Philadelphia: The frequency with which distortions of the fields occur with tumor of the temporal lobe is attested by the fact that in only eight of his series of sixty cases "the perimetric fields were normal." In Cushing's notable essay, reliable perimetric charts were obtained in thirty-nine of his fifty-nine temporal lobe cases, and in only six of them "the fields were at all times normal." Naturally, before a visual field can be labeled "normal," the perimetric work must possess the quality of exactness; quantitative perimetry must be employed.

Although color perimetry, for various reasons, is often far from satisfactory, and most of the visual results can be obtained with carefully graded white test objects, it is not quite safe to disregard color fields or, more accurately, what may be discovered with color tests. Doubtless all of us will agree that one examination should be used as a check against the other, but with the greater reliance on the quantitative form and white field, on account of their greater threshold of accuracy. Cushing believes that the homonymous field defects, such as he and Dr. Lillie portray, indicate an involvement of the temporal lobe of the optic radiations, although he notes that tract involvement may be expected as a late feature of all temporal lobe tumors.

We all know that homonymous hemianopia, complete or quadrant, is not infrequently found in pituitary body tumors due to tract interference. In my own series of more than 100 cases it was evident in fully 6 per cent. of the cases, and this does not include those charts in which there was a "tendency" to a homonymous defect. In such circumstances the homonymous quadrant defects of temporal lobe tumor and of certain types of hypophysial disorder are strikingly similar. Naturally, the usual presence of choked disk in the temporal lobe cases and its rarity in pituitary body tumors would be a differential point of importance. A perimetric differential sign of value, on which Traquair dwells, is that in the pituitary body cases, a scotoma, central or paracentral, is frequent, while usually, if not always, it is absent in the temporal lobe cases. In our author's series "no scotomatous defects were found—a confirmation of the statement just made. Traquair believes the scotomas of pituitary body disease represent an acuity of pressure and depend on disturbance of the vascular supply of the papillomacular bundle. Fully admitting the importance of this explanation, it has seemed to me that the possible toxic origin of these scotomas cannot be entirely disregarded, and Dr. Schaeffer and I endeavored to determine the pathway whereby such toxins, if it be conceded that they can be elaborated, could reach the papillomacular fibers.

Dr. A. W. Adson, Rochester, Minn.: I am interested in the series of cases Dr. Lillie has reported, since I operated on the patients at the Mayo Clinic. I wish to emphasize the value of the ophthalmologic findings. Brain tumors of the cerebrum usually present symptoms of intracranial pressure before localizing symptoms develop. While ventriculography is of some value in localization, it cannot be relied on in all cases, nor is the Bárány examination without error. I have, therefore, frequently been compelled to wait for the development of reflex disturbances at the onset of a motor or sensory paralysis. Thus, the results of careful and thorough perimetric findings have been of additional value in aiding early localization.

Dr. W. I. Lillie, Rochester, Minn.: Dr. de Schweinitz raised a question as to the differential diagnosis of early chiasmal and early temporal lobe lesions. I now have in manuscript form a study of six verified chiasmal and six verified temporal lobe lesions, all showing an homonymous notching of form and color fields. The fundi were normal in all the cases. In the chiasmal lesions there was usually a decrease in the visual acuity, and a marked enlargement of the blind spots, while in the early temporal lobe lesions before the appearance of choked disks, the blind spots were normal in size, and the visual acuity was good. In a previous paper on chiasmal lesions, all the early cases in which the fields of vision were still sufficient to map out the blind spots, all were found to be enlarged, and the temporal fields defects for form or colors were continuous with the enlargement of the blind spots. This has not been found in the temporal lobe lesions, even when choked disks are present.

PHYSIOLOGY OF THE LIVER

PRESENT STATUS OF OUR KNOWLEDGE *

A. J. CARLSON, Ph.D.
CHICAGO

The following methods are employed in the investigation of liver function in man and in animals:

1. The secretory or excretory functions of the liver can be investigated by biliary fistulas in man and in animals or in acute experiments in animals by collecting the bile direct from the duct. Thus, the chemistry of the bile both in the gallbladder and as directly secreted by the liver has been investigated and is approximately known. The same method yields data with reference to secretagogues that may stimulate production of bile, the relation of foods to bile secretion, and in acute experiments it is possible to study the evacuation mechanisms of the duct and gallbladder systems aside from the production of bile by the liver cells.

2. In acute experiments it is possible to collect portal and hepatic blood both during digestion and in fasting. This method has yielded important data on the liver function. The same method has also been employed in investigating various possible detoxicating functions of the liver. The substance or substances under investigation is introduced into the portal vein and an analysis of the concentration or of the change made as they appear or fail to appear in the hepatic vein blood.

3. The Eck fistula operation in experimental animals has also yielded data of importance on the problem of

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* From the Hull Physiology Laboratory of the University of Chicago.

* Read before the joint meeting of the Section on Pathology and Physiology and the Section on Gastro-Enterology and Proctology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

liver function. This operation is the anastomosis of the portal vein with the inferior vena cava so that all of the portal blood is shunted into the general circulation. This method has yielded important data in two directions: (1) the rôle played by the substances absorbed from the alimentary canal in the stimulation of the liver to bile production; (2) data on the apparent detoxicating function of the liver, particularly in connection with protein absorption and protein metabolism.

4. Chemical analysis of the blood and urine in cases of spontaneous liver disease or experimental injury as by specific liver poisons have also yielded some data of importance.

5. Extirpation of the liver in animals has added further data of importance, particularly in the relation of the liver to blood sugar, urea and uric acid. It has also raised the question of why abolishing the liver function, as accomplished by extirpation of the liver, in otherwise healthy animals is followed by death within from twenty-four to thirty-six hours.

6. Direct chemical and histologic analyses of liver tissue have yielded data of importance as to the storage of glycogen and fats in the liver, the storage of iron and other substances and the formation or storage of enzymes, as well as data bearing on the phagocytic activity of the endothelial cells of the liver capillaries.

7. Finally, perfusion of the excised liver has also contributed toward our knowledge of liver function.

It is a commentary on the complexity of the liver functions and the difficulty in securing conclusive data that, despite the pursuit of these various methods by competent investigators, both in the laboratory and in the clinical branches, much remains obscure and uncertain in the matter of liver function. Nevertheless, certain facts are fairly well established, and I propose briefly to enumerate these facts. There is one great difficulty, however, in stating and discussing these apparently established facts; namely, that we cannot always infer that the physiologic disturbances noted after various diseases of the liver are direct or indirect results of the impairment to liver function. Obviously, the results of liver impairment will be the more grave in proportion as any particular function is an exclusive liver function.

I. THE RELATION OF THE LIVER TO COAGULATION OF THE BLOOD

We have fairly conclusive experimental evidence that fibrinogen is produced in the liver or under the direct influence of the liver; at least this appears to be true for regeneration of fibrinogen after hemorrhage. It is also true that decrease in the concentration of the blood fibrinogen has been reported in some cases of liver injuries; but it is striking that there may be a great deal of pathologic change in the liver without disturbance of the fibrinogen concentration or blood coagulation. This can probably be explained in the light of recent evidence that 15 or 20 per cent. of the normal quantity of liver tissue suffices to meet the ordinary bodily needs (Mann). It is further known that under the influence of proteoses the liver produces substances that both accelerate and retard coagulation. Whether the latter group of substances, "antithrombin," is identical with Howell's "heparin," a substance obtained from the liver by Howell which decreases coagulation, even in vitro, is not known. There are further indications of the relation of the liver to blood coagulation in various hemorrhagic diseases, particularly in infancy.

II. THE RELATION OF THE LIVER TO PROTEIN METABOLISM

That the liver in mammals is the chief organ producing urea from cleavage products of protein metabolism and from ammonia absorbed from the alimentary canal has long been held as probable, although not so definitely proved as to go unchallenged. Folin and his co-workers have reported experiments which they interpret as showing that in mammals uric acid, for example, is destroyed principally in the blood; but the recent work of Mann and his associates by methods of total extirpation of the liver seems to show that the liver, after all, is the main organ that forms urea and destroys uric acid. Of course, even these experiments of Mann are open to the objection that the failure to produce urea and destroy uric acid after liver extirpation may be due to indirect impairment of other tissues or, changes in the blood composition. At present the latter alternative seems to me the least probable one. Liver perfusion experiments, as well as portal and hepatic venous blood chemistry, seem to show a considerable deamidization in the liver, but this is probably not an exclusive liver function. These processes probably go on to a certain extent in every living cell in the body. While the so-called meat poisoning following high protein diet in Eck fistula dogs indicates a definite rôle of the liver in connection with taking care of some of the immediate end-products of the protein digestion or the regulation of cellular protein metabolism, neither blood nor urinary analysis in such meat intoxication has yielded the final answer as to the precise nature of these processes or even the specific substances responsible for the symptoms of intoxication. The intoxication does not appear to be due to ammonia.

III. RELATION OF THE LIVER TO CARBOHYDRATE METABOLISM

Since the fundamental discovery of Claude Bernard of glycogen storage in the liver, a great amount of work has centered on this problem, particularly in relation to hypoglycemia and hyperglycemia, diabetes mellitus, and various forms of glycosuria. The possible direct nervous control of this phase of liver function has also been investigated with, at present, indecisive results. Particularly noteworthy are the facts that in severe diabetes mellitus or experimental diabetes following total extirpation of the pancreas, the liver cells practically lose their ability to store glycogen despite the high sugar content of the blood. This type of liver failure may be present without any evidence of serious impairment of other liver functions. The fact that the liver can again store glycogen on administration of the pancreatic hormone, insulin, is an illustration of reciprocal dependence of the liver cells on hormones or substances produced in other organs of the body. There are indications in the experimental literature of similar dependence of the normal detoxicating processes of the liver on hormones from the parathyroid glands, although in this case the data are by no means as direct or as conclusive as in the case of dependence of the liver cells on the pancreas hormone for normal storage of glycogen. The glycogen storage rôle of the liver cells is, of course, shared by the muscle tissue and other tissues of the body, although the recent work of Mann on liver extirpation seems to show that after total loss of the liver the animal completely loses its ability to regulate the level of the blood sugar. This is an important fact that only the liver extirpation method could have yielded. This regulation does not seem to depend on the quantity of glycogen in the liver, although when liver glycogen is present this source of glycogen is also used to mobilize blood sugar in hypoglycemia. Evidently, the liver produces some substance other than sugar necessary for the correlation of the blood sugar and tissue sugar; or else in the absence of the liver, toxic substances developed in the blood and the tissues upset the normal mechanism serving to maintain a fairly regular level of blood sugar, even under extreme conditions of carbohydrate ingestion or sugar utilization by muscular work. The same fact is indicated by Eck fistula dogs after chronic protein intoxication in which we have a progressive liver degeneration and persistent hypoglycemia (S. A. Matthews). The liver seems to be the main, if not the only, organ capable of forming glycogen from fructose and galactose.

IV. THE RELATION OF THE LIVER TO FAT METABOLISM

This problem is at present not well worked out. Direct chemical analysis of fats found in the liver, at least under certain conditions, seems to show that the liver desaturates fats. This has been interpreted as proving that the liver in this way prepares the fat for oxidation in other tissues, but it is still an open question whether other tissues besides the liver do not also have the faculty of desaturating and thus directly oxidizing fats. A curious and interesting relation seems to obtain between glycogen storage and fat storage in the liver in that when liver glycogen is diminished fat storage is increased.

V. BILE FORMATION

The formation of bile by the liver appears to be a process both of excretion and of secretion. Apparently the bile pigment can be to a large extent formed in tissues outside the liver. It is probably also formed in the liver itself, since the liver is one of the main sites of final solution of the erythrocytes; but on the basis of recent work by Mann and his associates, we must assume for the present that as regards the bile pigment the liver acts mainly as an excretory organ, and this view is in harmony with the well known fact that jaundice may appear as a result of an excess rate of hemolysis when there is no obstruction at all in the bile passages and, therefore, a free flow of bile from the liver into the intestines. Under these conditions it is obvious that the production of bile pigment from liberated hemoglobin exceeds the excretory capacity of the liver and hence some of the symptoms of jaundice. The bile salts, or rather the bile acids, appear to be specifically synthesized in the liver; hence these are true secretory products of liver activity. The liver, like other tissues, probably has the power to form cholesterin; the cholesterin of the bile may therefore be partly an excretory and partly a secretory function, depending on the activity of the liver cells. The excretory rôle of the liver is further indicated by the great number of substances artificially introduced into the body which appears in the bile. Some of these substances are at the same time excreted by the kidneys; others, again, like tetrachlorphenolphthalein, appear to be exclusively excreted by the liver. This phase of liver action has been extensively exploited in recent years with the view of developing reliable clinical tests of the liver functions. It must be noted that such tests touch only the excretory capacity of the liver. They do not touch the other fundamental liver processes, and one must be careful in drawing conclusions as to liver function on the basis of excretory tests alone, in view of the fact that some functions of the liver may be impaired at the same time that others seem to be relatively unimpaired.

VI. FUNCTIONS OF THE GALLBLADDER

The gallbladder seems to be an anomaly, since it is absent completely in some mammals and it can be extirpated in man and the experimental animal without any demonstrable influence on liver function or bile formation. It is definitely demonstrated that the bile in the gallbladder is concentrated; that is, there is considerable water absorption. Apparently some mucin is added to the bile in the gallbladder. The gallbladder itself is feebly contractile by virtue of the small amount of muscle tissue in its wall. We must remember that the entire liver, including the gallbladder and the duct system, is a diverticulum of the intestine, and we must therefore expect some remnants in structure and function in the duct system from this original intestinal anlage.

Bile is continually produced by the normal liver even in the fasting man and animals, and it continues to flow into the intestine provided there is no obstruction to the duct system, even during prolonged fasting. I feel that the rôle of the gallbladder as the storage organ for bile has been greatly exaggerated, and many textbooks of physiology err when they state that bile does not enter the intestine except during digestion. The inference from such a statement is that bile secreted during fasting is stored in the gallbladder. The gallbladder is not of sufficient size for such storage, even though considerable absorption of water from the bile takes place in that organ.

Any one working on large numbers of laboratory animals must be struck with the relatively uniform size of this organ at necropsy. We find in general the same content of bladder bile in the same species of animal irrespective of whether the animal is at the height of digestion or in a prolonged fast. The secretory pressure of bile is relatively low. Various figures are given by different observers. It is further reported that the secretory pressure of bile is lower than the normal tonus of the so-called sphincter of Oddi, a system of smooth muscle fibers at the entrance of the bile duct into the lumen of the duodenum. The resistance to the flow of bile into the duodenum is probably determined more by the tonus of the muscle wall of the duodenum than by the tonus of the so-called sphincter of Oddi, since the bile duct runs for some distance obliquely through this muscle layer. The state of tonus or periodic contractions of the duodenum must therefore be of importance in the flow of bile into the intestines, irrespective of any contractile power of the gallbladder or secretory pressure in the liver itself. Food in the stomach and intestines leads to increased secretion of bile. Hydrochloric acid or acid gastric juice in the duodenum leads to increased flow of bile. Since there is a continuous secretion of more or less acid gastric juice into the stomach, even in fasting, we have at least one mechanism that may play a rôle in the continuous production of bile by the fasting liver, although, of course, continued destruction of erythrocytes as well as the continuous absorption of bile acid from the intestine are additional mechanisms. There is indisputable evidence that the bile salts themselves are true cholagogues. It is also true that the "secretin" of Bayliss and Starling, when injected intravenously, causes some increase in the secretion of bile; but it is at present doubtful whether this secretin in the sense that Bayliss and Starling used the term is a normal mechanism either for pancreas or for liver secretion. Aside from foods, acid gastric juice, the bile salts or whole bile, there are at present no definitely demonstrated cholagogues. This is a curious commentary on numerous kinds of "liver pills" and "liver remedies" that have grown so luxuriantly from time to time in the hothouse of therapy. It has been shown that part of the increased bile production in the response to foods is due to the absorption of substances from the alimentary canal rather than to the reflex action, since bile secretion in response to a meal is decreased in the Eck fistula dog, in which the portal blood is shunted into the general circulation and only a small fraction of the digestive products thus comes into contact with the liver through the hepatic artery.

VII. RELATION OF THE NERVOUS SYSTEM TO LIVER FUNCTION AND BILE EVACUATION

The relation of the nervous system to liver function and bile evacuation forms an interesting and challenging chapter in the literature on liver function in health and disease. Most of the problems remain at present incompletely solved. The following statements may be briefly made:

1. Section of both vagi and both pairs of splanchnic nerves induces no demonstrable change in liver function or in evacuation of bile into the intestines. This seems to show that the extrinsic nerves connecting the liver and the bile systems with the central nervous system are not necessary in normal liver process. In this respect we find a parallel in the normal function of the stomach and intestines after complete denervation. Conclusive as these experiments seem, they do not permit the corollary that the nerves connecting the liver and the bile system with the central nervous system play no rôle in normal or abnormal liver functions.

2. The famous "puncture" experiments of Claude Bernard, that is, injury to the medulla leading to hyperglycemia from rapid liberation of liver glycogen, have been abundantly confirmed but not yet completely analyzed. Macleod has reported the following facts:

(*a*) Stimulation of the peripheral end of the splanchnic nerve causes liberation of liver glycogen. The same stimulation, after previous excision of the suprarenals on the same side, does not produce excess liberation of the liver glycogen.

(*b*) Stimulation of the splanchnic nerves after section of the hepatic plexus also fails to produce liberation of liver glycogen. Hence, splanchnic nerve stimulation apparently does not produce hyperglycemia by liberation of epinephrin. However, stimulation of the splanchnic nerve peripheral to the suprarenal produces hyperglycemia when the suprarenals are intact, but not when they are extirpated. Macleod therefore concludes that the splanchnic nerves contain true glycogen fibers to the liver, but that the action of these nerve fibers on the liver cells depends on something given off to the blood by the suprarenals. This phase of the problem requires further investigation before even these conclusions can be accepted.

3. Cannon and his co-workers have reported that stimulation of the hepatic nerves liberates something in the blood which has a direct stimulative action on the denervated heart. This is particularly true, according to Cannon, when the experiment is made on the animal at the height of digesting a protein meal. In regard to most of the present experiments on the rôle of the hepatic nerves in liver function, it must be noted that it is extremely difficult to isolate the effect of vasomotor changes in the liver due to such stimulation from the possible effects of other types of nerve fibers in the same nerve trunk on the hepatic cells direct, since many of the liver functions, notably the storage of glycogen, are sensitive to the hydrogen ion concentration, which, of course, is quickly changed by liver vasoconstriction.

4. As regards the extrinsic nerve control of the contractions of the gallbladder and the musculature of the bile passages, and particularly the sphincter of Oddi, there are few fields in experimental physiology in which so much serious work has been done with so few conclusive results. In crucial experiments one may obtain a feeble contraction of the gallbladder on *the stimulation of the peripheral end of the cut vagi.* Investigators have also reported that this stimulation causes relaxation of the sphincter of Oddi, and that stimulation of the peripheral end of the cut splanchnic nerves, on the other hand, causes relaxation of the tonus of the gallbladder and contraction of the sphincter of Oddi. Equally competent observers have failed to obtain the latter results.

Now, from the fact that both vagi and the splanchnic systems send motor as well as inhibitory fibers both to the gastric and possibly to the duodenal musculature, it is highly probable that this original primitive nerve supply is also present in the gallbladder and hepatic duct system. The fact, however, that no disturbance follows section of these nerves seems to show that it is of no fundamental or primary importance in health, and that reflexes of prime importance involving the gallbladder and duct system are local, as in the case of the coordination of gastric and intestinal motility.

5. When food or acid gastric juice enters the duodenum, duodenal motility is initiated or augmented both by local and by long reflexes, and increased secretion is produced in the stomach, pancreas and liver. Some increased tonus may be induced both in the gallbladder and in the duct system, and these, aided by peristalsis of the duodenum and by increased secretory pressure of bile, probably account for the copious flow of bile into the intestine parallel with digestion.

6. The practical aspect of this question has been emphasized in the last few years by the introduction of the so-called Meltzer-Lyon method of nonsurgical drainage of the gallbladder. This method assumes that on the introduction of magnesium sulphate directly into the duodenum by means of the duodenal tube there follows relaxation of the sphincter of Oddi and contraction of the gallbladder, and hence a drainage of the bile from the gallbladder and duct system to a degree not produced by foods, water or gastric juice in the duodenum, or by magnesium sulphate given by mouth. I have seen no satisfactory data proving these assumptions, and I question them in toto on the basis of what is known concerning the physiology of the liver, the duodenum and the liver excreting systems.

I have no right to and I do not propose to question the reports of the effects on patients of this therapy, but I should like to see controls and statistics like those that we require in the therapies of other diseases. What is the natural history of the maladies in which this drainage has been used? It has been used in migraine, in nausea, in undernutrition and in many gastro-intestinal disorders of obscure etiology and uncertain duration. What is the average duration of these maladies in the absence of duodenal drainage? We cannot establish facts or reliable therapies in this or any other field by the ordinary testimonial method. Magnesium sulphate is, of course, an old and well known stimulant to intestinal peristalsis and defecation. When introduced into the duodenum, some of it will escape down into the small intestine and the large bowel, even though attempts are made to drain the duodenum after a minute or two. I cannot see that the clinical results reported can possibly be due either to the drainage of the gallbladder or to drainage of the liver and the pancreas, or even to evacuation of some of the bile by way of the duodenal tube, as I know no evidence proving that this bile is injurious when left in the intestines.

MODIFIED PHYSIOLOGIC PROCESSES FOLLOWING TOTAL REMOVAL OF THE LIVER *

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The physiologic changes that occur when the liver is extirpated have been studied for several years in our laboratories. In this paper I shall present briefly a general review of the results of our experiments on the changes in physiologic processes produced by the sudden and complete removal of the liver, and discuss them in relation to the functions of the liver. Although a great many changes have been observed, data concerning the modification of carbohydrate metabolism, protein metabolism and the major constituents of the bile mainly will be presented.

Several different species of animals have been employed in the experiments, such as the goose, the duck, the frog, the turtle and the fish. While the general effects of hepatectomy have been the same in all species of animals, the variation probably depending on the difference in metabolism of the various species, I shall emphasize the results as obtained in the dog.

The method employed for removal of the liver in the dog, as well as the procedure necessary for maintaining the animal in good normal appearance and physiologic condition, has been presented. In this connection it should be noted that the success of these studies of the effect of total removal of the liver has been due to two factors: (1) the development of a method for total removal of the liver which is comparatively free from complications and does not impair the venous return from the viscera and lower extremities, and (2) the discovery that a certain level of blood sugar is necessary to maintain life, that normally the liver maintains this level, and, finally, that following removal of the liver the blood sugar level could be maintained artificially by the administration of correct amounts of glucose. By the proper utilization of these two principles, a dog could be maintained in a normal appearing condition for many hours after the loss of the liver. This furnished an opportunity to observe the changes in physiologic processes produced by the sudden loss of hepatic function over a period of several hours in an animal appearing no different from any other animal that has been subjected to etherization and operation. As a review of the pertinent literature on the subject has been given in other papers, it will not be presented here.

MODIFICATION OF CARBOHYDRATE METABOLISM FOLLOWING REMOVAL OF THE LIVER

Removal of the liver completely severs a part of the vital normal process of carbohydrate metabolism. Immediately after removal of the liver the animal appears normal for several hours, but the blood sugar level begins progressively to fall. When it reaches a certain rather definite level, a characteristic group of symptoms develops; they usually occur in an order paralleling the decrease in concentration of sugar in the blood. If glucose is injected in proper amounts when the animal is in the moribund condition associated with the low blood sugar, there is an immediate return to normal. After a period of time, which in general depends on the amount of glucose injected, the blood sugar again becomes low, the characteristic symptoms develop and injection of glucose restores to normal. This process can be repeated many times with the same result, although usually progressively increasing amounts of glucose are necessary to maintain the blood sugar above the hypoglycemic level. Finally, however, another group of symptoms develops, entirely different from those occurring when the blood sugar is low, and the animal dies, regardless of the amount of glucose administered. Thus far it has not been possible to determine the cause for the second group of symptoms and the resulting death. If glucose is administered before the blood sugar has decreased to a low level, the characteristic symptoms associated with the hypoglycemia do not develop.

Many substances were administered to the moribund hepatectomized animal to determine whether the curative effect of glucose was specific or whether other substances would replace it. No other was found except a few other sugars which are readily converted into glucose in the blood stream. Other substances that might possibly be substituted for glucose or converted into glucose, if sufficient time were given for such changes to take place, were tried by administering them in suitable and comparable amounts immediately after removal of the liver. The blood sugar and the condition of the animal were carefully observed to determine whether the decrease in blood sugar and the development of the symptoms were delayed. Among the substances thus employed were glycocoll, lactic acid, and levulose. None of these substances produced any effect when the animal was in the moribund condition. Nor did glycocoll or lactic acid produce any effect when injected at frequent intervals immediately after removal of the liver until the animal was moribund. The progressive fall in the blood sugar level, and the time after removal of the liver at which the hypoglycemic condition developed, were not in any way affected. It was possible to keep the hepatectomized animal alive, but not in a normal appearing condition, by the injection of levulose, beginning the injections immediately after operation. It was necessary to administer the levulose more frequently and in larger amounts than the glucose, and the animal did not exhibit the same general well being as when glucose was used. Furthermore, levulose maintained life for a shorter time.

It is not necessary to describe here the characteristic group of symptoms that occur in association with the

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* From the Division of Experimental Surgery and Pathology, the Mayo Foundation.

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low blood sugar following hepatectomy and the strikingly beneficial effect produced by the injection of glucose in the moribund condition of hypoglycemia, not only because such a description was given somewhat in detail in the first articles, but also because, with the recent discovery of insulin, it was soon found that an almost identical hypoglycemic condition could be produced with it as had been produced in hepatectomized dogs.

In this connection it might be well to state that our observations support the idea that these characteristic symptoms are directly dependent on the hypoglycemia. Furthermore, while no explanation of the cause of the hypoglycemia after hepatectomy can be given at present, it is certain that at least part of the lost glucose is used for the maintenance of metabolism, and in all probability the symptoms of hypoglycemia are directly due to the loss of the available foodstuff.

After it had been found that the liver was necessary to the maintenance of the normal blood sugar level, it seemed desirable to know whether it was also responsible for producing the increases in blood sugar. The hyperglycemic conditions can be divided into two types: (1) the more or less permanently sustained hyperglycemia that follows the removal of the pancreas, and (2) the transitory hyperglycemia that follows states of asphyxia, excitement or operative trauma, and the administration of certain drugs, such as epinephrin.

The effect of hepatectomy was studied at various periods after pancreatectomy. If the liver and pancreas are removed at the same time, no different result is observed than when the liver alone is removed. If the liver is removed after definite and marked hyperglycemia has occurred following pancreatectomy, the blood sugar decreases seemingly more precipitately than in the normal hepatectomized dog, and the characteristic hypoglycemic symptoms develop. Usually such symptoms occur at a much higher blood sugar level if the pancreas has been removed some hours previous to the removal of the liver than if only the liver has been removed. The beneficial effect of glucose is very transitory in the hypoglycemic, pancreatectomized animal.

The effect of hepatectomy on the transitory hyperglycemia produced by anesthesia and operation, asphyxia and epinephrin was investigated. In no instance did an increase in blood sugar occur following these procedures in a hepatectomized animal. As a matter of fact, it was not possible to produce an increase in blood sugar in a hepatectomized animal except by the administration of glucose or related sugars.

The glycogen content of the muscle of the hepatectomized animals was found to decrease while the blood sugar was decreasing. However, the muscle glycogen rarely decreased more than 50 per cent. between the time of operation and the beginning of the moribund period. Furthermore, there was always an amount of glycogen in the muscles when the animal was moribund which, if it had been converted into glucose and added to the blood stream, would have been sufficient to maintain the blood sugar considerably longer. If, after an animal has been moribund, glucose is injected in amounts sufficient to keep the blood sugar above normal, the muscle glycogen will increase after a few hours, and there may be more than before the liver was removed. Muscle glycogen may also be increased in the hepatectomized animal by the injection of lactic acid and levulose.

As hepatectomy so greatly alters the metabolism, it was desirable to determine whether the respiratory quotient and total heat production were affected by the loss of the liver. It was also hoped that these studies might furnish some clue to what happened to the glucose that disappeared after hepatectomy. Accordingly, animals prepared for removal of the liver were trained for the basal metabolism observation. After fairly constant results had been obtained with regard to the respiratory quotient and total heat production, as well as the effect of the intravenous injection of various amounts of glucose on the same factors, the liver was removed. Observations were made on the metabolism of the hepatectomized dog during the normal period after operation, when hypoglycemic and moribund, and during the recovery after the injection of glucose.

This series of experiments was very difficult, and there were many possible sources of error which could not be wholly eliminated. The data at present do not justify definite conclusions. It can be stated, however, that the respiratory quotient appears to increase after removal of the liver and that the total heat production decreases as the animal becomes hypoglycemic. Both the respiratory quotient and the total heat production increase after the intravenous injection of glucose, and the response is seemingly more marked in the hepatectomized animal than in the normal animal.

MODIFICATION OF PROTEIN METABOLISM BY REMOVAL OF THE LIVER

Estimations of the importance of the liver in relation to protein metabolism and the various nitrogenous constitutents of the blood vary. Certain observers consider that this organ is very important to protein metabolism and that it is the sole source of some of these nitrogenous constituents; others deny that the liver has anything more to do with protein metabolism and the function of these nitrogen constiuents than any other tissue of the body.

Experiments showed that protein metabolism is greatly modified by removal of the liver. They definitely proved that the liver has a great deal to do with the metabolism of this major foodstuff and the origin of some of the nitrogenous constituents of the blood. The manner by which removal of the liver affects protein metabolism can be best illustrated by a separate consideration of the effect of hepatectomy on the various nitrogenous constituents of the blood.

The urea content of the blood following removal of the liver depends entirely on the amount excreted from the body. If the kidneys are removed at the same time as the liver, or if the animal becomes anuric after hepatectomy, the urea content of the blood remains the same or falls slightly below its preoperative level. The decrease noted in such experiments can be accounted for by the amount lost in the saliva and vomitus. If the secretion of urine is maintained after hepatectomy, there is a marked decrease, not only in the urea content of the blood, but also in the amount eliminated through the urine and in the urea content of the tissues of the body, as the muscles. If the kidneys are removed from eight to twenty-four hours before the liver is removed, so that at the time of hepatectomy the blood urea level is far above normal, no further increase in blood urea takes place. The urea found in the blood and tissues and excreted after operation accounts for all the urea present at the time of operation. These results conclusively prove that the production of urea absolutely ceases after removal of the liver.

Normally, the dog does not show more than a trace of uric acid in the blood or excrete uric acid in any appreciable amount in the urine, as this nitrogenous constituent is further oxidized to allantoin. After removal of the liver, uric acid appears in the blood, and concomitantly, a great amount will be excreted in the urine. The amount of urates excreted in the urine of a hepatectomized dog is often so great that about half the volume is a heavy flocculent precipitate, and so concentrated that crystals form almost immediately after the urine is voided. Uric acid injected into the normal dog is very quickly destroyed. Uric acid injected into the hepatectomized dog may be almost entirely recovered in the urine, or, if the kidneys are removed, the injected uric acid will approximately all be found in the muscles and blood. These experiments prove conclusively that the destruction of uric acid in the normal dog depends on the presence of the liver, since the destruction ceases as soon as the liver is removed. They suggest that the liver in man may be of considerable importance in the metabolism of the purins.

Removal of the liver is followed by a progressive increase in the amino-acid content of the blood. If the kidneys are removed at the same time as the liver, the amino-acids increase more rapidly in the blood. One amino-acid, glycocoll, has been injected intravenously to determine whether it would in any measure take the place of glucose, either in preventing the development of the hypoglycemic symptoms or in restoring the animal to normal after they had developed. Glycocoll never produced any beneficial action. It would thus seem that it could not in any measure take the place of glucose in the hepatectomized animal. There was never any evidence of the formation of urea following the injection of amino-acids into the hepatectomized animal. These observations, taken as a whole, would imply that the normal mechanism for the utilization of amino-acids is probably destroyed by the removal of the liver.

The changes in the blood creatinin after removal of the liver depend entirely on the kidneys. If the kidneys are active, the blood creatinin does not change. If the kidneys are removed as well, or the animal becomes anuric, the creatinin increases in the blood at the same rate as when only the kidneys are removed. The creatin behaves in a similar manner. The liver would therefore appear to take no specific part in the creatinin-creatin metabolism.

The result of experiments on the effect of removing the liver on the formation of ammonia are not entirely satisfactory. There is a shift in the relation of urea and ammonia nitrogen in the urine, with a relative increase in ammonia nitrogen compared to the decrease in urea nitrogen. There does not appear to be an increase in the total amount of ammonia in the urine or in the tissue. The liver probably does not have any special part in the production of ammonia.

THE CONSTITUENTS OF THE BILE AFTER REMOVAL OF THE LIVER

Bile production is probably the best known and one of the most important functions of the liver. The bile is composed of several substances, of which bilirubin, the bile salts and cholesterol are considered the most important. One of the most debated questions concerning the action of the liver has been whether it is responsible for elaborating these three important constituents of the bile or whether they are formed elsewhere in the body and merely excreted by the liver. Estimating the amount of these substances in the blood before and at various times after hepatectomy offered an excellent method of studying this problem.

The results of experiments are very definite as regards bilirubin. This important constituent of the bile can be formed in tissues other than the liver. A yellow color has consistently developed in the urine, plasma and fatty tissue of all hepatectomized animals living more than six hours. The yellow in the urine is usually observed in the first specimen secreted after operation. In from three to six hours after removal of the liver, the plasma becomes tinged with yellow, which usually increases progressively until death. A yellow tinge also develops in the sclerotics of the animals that live sixteen hours or more after operation, and can be sometimes seen in the mucous membranes as well. At necropsy all the fatty tissue is a dirty yellow. This yellow pigment, wherever found, was positive for bilirubin in all the chemical tests employed, including all those that are generally accepted.

The accepted chemical tests for bilirubin are not considered absolutely specific, since a few other substances will give a positive reaction. These substances, however, are not normal constituents of the blood. It would seem, therefore, that while the possibility does exist that a substance other than bilirubin might occur in the blood which would give the bilirubin reaction, the chemical identification of the pigment is practically definite. The possibility must also be considered that there may be substances intermediate between hemoglobin and bile pigment, as found in the bile, which would give a positive chemical test for bilirubin. It is possible that these intermediary substances could be formed outside the liver, but that the elaboration of the pigment in its final form goes on only in the liver. All observations were opposed to these views and tended to prove that the pigment which accumulated in the hepatectomized dog was the same as the pigment found in the bile. As all the accepted chemical tests gave a positive reaction for bilirubin with the pigment in the blood of the hepatectomized animals, only the physical methods of identification of the pigment remained. Through the cooperation of Sheard of the Section on Physics the pigment was tested in the only other known manner; namely, by determining the curve of its light transmission. The liver was removed from one dog, and the gallbladder was removed and the common bile duct ligated in another dog. When the plasma had become markedly yellow in each animal, about eighteen hours after operation, specimens of plasma from each dog were given to Sheard to determine the curve of light transmission with the spectrophotometer. The curves obtained from the two pigments were identical. This would seem to add the final evidence that the pigment which develops in the hepatectomized animal is bilirubin.

The possible sources of the pigment were carefully investigated. As the liver was totally removed, the possibility of remaining liver tissue having caused the production of the pigment need not be considered. That the pigment was not squeezed from the liver at the time of operation is proved by its absence from the plasma immediately after operation, by its progressive increase and by the failure of careful clamping of the vena cava before hepatectomy to prevent its occurrence. That it was not just the result of the absorption of bile from the intestine which had been discharged previous to hepatectomy is proved by the failure of resection of the gastro-intestinal tract at the time of hepatectomy to prevent its occurrence, and by the disappearance of pigment from the contents of the gastro-intestinal tract within a few hours after hepatectomy, while the pigment in the plasma increased progressively. That it had not just been stored in some organ previous to hepatectomy is evident, since the amount in the urine and the amount found in the plasma and tissues at death was too large to have been stored in any one organ or tissue without giving marked evidence of its existence. As the pigment appears in animals in which both the liver and spleen are removed, the latter organ is clearly not necessary for its formation. Furthermore, it appears when no blood is present in the peritoneal or any other serous cavity, so that the cells lining these cavities are not essential to its production.

The results of our experiments, therefore, show conclusively that after removal of the liver, a pigment accumulates in the body, which in all its characteristics, chemical and physical, appears to be bilirubin and which is made by some organ or tissue without the intervention of the liver. This proves definitely that the liver is not essential to the formation of bilirubin. At least a portion of the bile pigment can be produced outside the liver, and to some extent the liver must be considered an excretory organ so far as this constituent of the bile is concerned.

The effect of extirpation of the liver on the incidence of the other two important constituents of the bile, the bile salts and cholesterol, in the blood was not so clearly demonstrated. Estimations of the cholesterol of the blood before, and at various periods after, removal of the liver did not show any significant changes. These results do not permit the drawing of conclusions in regard to the relationship of the liver to this substance. They might be interpreted as showing that cholesterol is made by the liver and that when this organ is removed no change in the blood content would occur because its utilization is so slow. On the other hand, they might mean that the liver merely excretes cholesterol after it has been made elsewhere in the body but that the rate of its production over its utilization and excretion is too slow to produce a measurable increase in the blood during the experiments.

Data on the relationship of the liver to the formation of bile salts are also inconclusive. Present chemical methods are not sufficiently delicate to determine the accumulation of bile salts in the blood following the obstruction of the common bile duct during the period the hepatectomized animal is kept alive. It would therefore seem impossible to hope to obtain results in the hepatectomized animal until a more delicate method of detection and estimation of bile salts in the blood has been elaborated. We have, however, obtained positive Pettenkofer's tests for bile acids in dialysates of plasma obtained several hours after the liver was removed in dogs whose dialyzed plasma gave no tests for bile acids before operation.

THE PHYSIOLOGIC SIGNIFICANCE OF THE MODIFIED PHYSIOLOGIC PROCESSES FOLLOWING TOTAL REMOVAL OF THE LIVER

Conclusions must be drawn cautiously with regard to the function of an organ, when they are based on a study of the effect of its removal. It is always quite possible that many of the results following removal may be secondary and not directly related to the activity of the organ in question. However, many of the results of the effect of hepatectomy have been so definite and their significance so clear that conclusions are justified.

Many other changes observed after hepatectomy require confirmatory data before conclusions can be drawn.

Certain functions of the liver would appear to be clearly defined. The liver is functioning at all times to maintain the normal blood sugar level. Furthermore, the production of the permanent and transitory condition of hyperglycemia, not due to the administration of carbohydrate, depends on the liver. The liver is not only the storehouse for carbohydrates and the seat of the mechanism whereby a fairly constant blood sugar level is maintained, but it probably also has the ability to make glucose from other available sources. This predominant and responsible position of the liver with regard to maintaining the blood sugar level under varying conditions and employing, when necessary, a variety of materials, suggests also a necessary and more or less specific relation to protein metabolism. Thus urea formation ceases and the amino-acids increase after removal of the liver. The organ also has an important share in the metabolism of the purins.

The glycogen mechanism of the muscle is probably of little importance with regard to the general blood sugar content. It would appear that the glycogen in the liver acts as a reservoir from which the liver can maintain a fairly constant level of blood sugar under varying conditions of absorption of carbohydrate and utilization of glucose, while the glycogen in the muscles is mainly for the purpose of muscular metabolism. The liver to some extent is but an excretory organ as regards bile pigment.

SUMMARY

The blood sugar decreases from the instant the liver is removed. Muscle glycogen decreases concomitantly. When the blood sugar falls to a certain level the characteristic symptoms associated with low blood sugar appear, and if glucose is not administered, the animal will die in a condition of hypoglycemia. The proper administration of glucose prevents the hypoglycemia and the development of the characteristic symptoms, and prolongs the life of the animal many hours until a different condition develops and the animal dies. The cause of death in the latter condition has not been determined. The action of glucose in the hypoglycemic condition is specific. The decrease in blood sugar following hepatectomy also occurs in the condition of hyperglycemia that follows extirpation of the pancreas. The transitory hyperglycemia that follows the administration of epinephrin, production of asphyxia and similar procedures does not occur after hepatectomy. An animal will die following the development of hypoglycemia with a considerable amount of glycogen still present in the muscles. If the blood sugar level is maintained above normal in the hepatectomized animal, muscle glycogen will increase. Urea formation ceases immediately after removal of the liver. The amino-acids, which normally would have entered into the process of urea formation, accumulate in the blood and, if the kidneys are active, are excreted in the urine. Uric acid is not destroyed, and it actually accumulates in the blood and tissues or is excreted in the urine if renal activity is maintained. A yellow pigment accumulates in the hepatectomized animal which gives a positive reaction to the accepted chemical tests for bilirubin as well as produces the same curve of light transmission, with the spectrophotometer, as bilirubin.

THE CLINICAL USE OF TESTS FOR HEPATIC FUNCTION [*]

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The recent advances in physiology and biochemistry are responsible for a renewed emphasis on the functional changes accompanying disease of the different organs. The development of rapid and simple methods of blood analysis, in particular, has contributed largely toward this end.

The most widespread and striking applications of functional tests to clinical medicine have been made in the study of renal diseases. The kidney is preponderantly an excretory organ and, consequently, peculiarly suitable for functional study. Both the initial material, the blood, and the excretory product, the urine, are readily available for analysis. In consequence, tests of renal function are widely used and their value, especially that of the determination of the blood urea and the excretion of phenolsulphonephthalein, is firmly established.

The clinical study of the activities of the liver is much more difficult, for it is an organ with manifold functions, and detailed knowledge of some of its normal physiologic activities is extremely inadequate. The liver is chiefly concerned with the blood borne to it by the portal vein; this blood comes from the abdominal viscera and may contain many substances not present in the general circulation. The bile cannot be directly collected for study, and the material obtained by duodenal drainage may be mixed with an unknown amount of intestinal content. Therefore, the approach to the functional study of the liver must be indirect and correspondingly difficult.

Many tests for the various individual activities of the liver have been devised. Some are of doubtful value; others have interesting possibilities and promise to be useful to the clinician.

During the last two years, I have been making a comparative study of the more promising of these tests in an effort to determine their place in clinical medicine. Through the cooperation of the Mayo Clinic staff it has been possible to study patients with hepatic disease from the medical, surgical, pathologic and physiologic aspects, as well as from the laboratory point of view. A series of more than 700 cases has been thoroughly studied in this way.[1] At this time, it will be possible to indicate the more important conclusions.

GENERAL METABOLIC ACTIVITIES OF THE LIVER

Carbohydrate Metabolism.—Since the time of Claude Bernard, the importance of the liver in relation to the storing of glycogen and the regulation of the blood sugar has been manifest. Many attempts have been made to demonstrate changes in the glycogenic activity of the liver. Fructose has been the sugar most commonly used for this purpose. A diminished ability on the part of the organism to utilize this sugar, as evidenced by its appearance in the urine or by an undue increase in the amount in the blood following the administration of fructose, has been thought to indicate functional inefficiency of the liver.

It can be shown experimentally that a diminished fructose tolerance follows toxic injury to the liver by phosphorus, chloroform or hydrazin. A similar reduction in fructose tolerance following experimental ligation of the common bile duct has been observed by investigators.

The clinical application of such experimental findings is difficult. Numerous factors, such as pancreatic, pituitary or other endocrine disorders, influence the ability of the organism to metabolize carbohydrates. The clinical use of the original test devised by Strauss has generally been abandoned. We have used the more recent modification recommended by MacLean and de Wesselow, and studied the change in the blood sugar following fructose administration. We have not been able to show specific changes that could be definitely ascribed to hepatic damage alone. In general, we believe that while tests of fructose tolerance may be valuable from an experimental standpoint, they are of questionable importance in the diagnosis and treatment of the individual patient.

Protein Metabolism.—The liver is known to be the seat of much of the intermediary nitrogen metabolism in the body. Frerichs was one of the first to recognize the importance of crystals of the amino-acids, leucin and tyrosin in the urine of patients with acute yellow atrophy. During the last two decades, much has been written concerning the urinary nitrogen partition in hepatic disease. Rowntree, Marshall and Chesney emphasized the difficulty of interpretation in such studies, and called attention to the accompanying changes in the blood; they found that the proportion of blood urea was slightly decreased in hepatic disease. More recently, Bollman, Mann and Magath have reported evidence pointing to a cessation of urea formation in dogs after complete extirpation of the liver. In our experimental animals with obstructive jaundice, there was usually a sharp and definite decrease in both the relative and absolute values of the blood urea. These low values persisted until shortly before the death of the animal, when a terminal rise of blood urea occurred. This probably was evidence of terminal renal insufficiency.

Clinical experience has not demonstrated a significant departure from the normal in the blood urea. In patients with jaundice, the average value for the blood urea apparently is slightly lower than in those without jaundice, but the change is not sufficiently marked to be of diagnostic importance. In the dog, urea formation ceases after the complete removal of the liver. In man, a comparable degree of hepatic insufficiency is not observed, even with the grossest hepatic changes.

Following operation for the relief of obstruction of the biliary tract, patients not infrequently become extremely toxic. This condition is accompanied by increasing jaundice and a rise in the blood urea, even though the output of urine is maintained. Impairment of one function of the liver, such as that of bile excretion, is not necessarily paralleled by changes in the other physiologic activities. This fact indicates the necessity in the functional study of the liver of employing a diversity of tests that will include the multiple activities of that organ. Mention should be made of the strikingly beneficial action of the intravenous administration of glucose in combating this toxemia.

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[*] From the Division of Medicine, Mayo Clinic and the Mayo Foundation.

[*] Read before the joint meeting of the Section on Pathology and Physiology and the Section on Gastro-Enterology and Proctology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Greene, C. H.; Snell, A. M., and Walters, Waltman: Clinical and Experimental Studies in Diseases of the Liver, I, A Survey of Tests for Hepatic Function, Arch. Int. Med. **36**: *248-272* (Aug.) 1925. Snell, A. M.; Greene, C. H., and Rowntree, L. G.: II, A Comparative Study of Certain Tests for Hepatic Function in Experimental Obstructive Jaundice, ibid. **36**: *273-291* (Aug.) 1925. Greene, C. H.; McVicar, C. S.; Rowntree, L. G., and Walters, Waltman: III, A Comparative Study of Certain Tests for Hepatic Function in Patients with Obstructive Jaundice, ibid. **36**: *418-436* (Sept.) 1925.

In the dog, the liver is directly concerned with the metabolism of uric acid which accumulates in the blood following hepatectomy; in man, no noteworthy change in the amount of uric acid or other nonprotein nitrogenous constituents of the blood has been observed in hepatic disease.

FORMATION AND EXCRETION OF BILE

Bile Pigments.—Since the most striking hepatic disorders are those accompanied by the retention of bile and consequent jaundice, much attention has been paid to the presence and source of bile pigments in the blood, urine and feces. Mann's experiments have finally and conclusively proved the contention of Whipple and Hooper that bile pigment may be formed outside the liver and excreted by that organ. Obstructive, hemolytic and hepatogenous types of jaundice must each be recognized as possible from a physiologic point of view.

A century ago, Tiedeman and Gmelin reported the presence of bile pigment in the blood of a patient with obstructive jaundice. Gmelin's test is classic and, until the last few years, was the standard method for the recognition and study of the bile pigments. Recently, van den Bergh has devised a quantitative and more sensitive test for bile pigments. This method has made it possible to study the bile pigment or bilirubin content of the blood serum in patients with jaundice. The test is important from both the physiologic standpoint and that of clinical usefulness; it is quite as important to study the serum bilirubin in hepatic disease as it is to measure the blood urea in renal disease. Bilirubin cannot be shown by the van den Bergh test to be normally present in the serum of the dog. Following ligation of the common bile duct, it appears in increasing amounts, although large quantities are not found until forty-eight hours or more after operation. If the gallbladder is removed at the time the common duct is ligated, bilirubin appears in the serum much more rapidly, and large amounts are found within from twelve to twenty-four hours. After the preliminary rise, the bilirubin content of the serum is quite constant during the period of obstruction. In all cases, the appearance of clinical signs of icterus follows the increase in the pigment content of the blood.

The study of the serum bilirubin is of equal clinical usefulness: (1) in estimating the degree of retention of bile in patients with obstructive jaundice; (2) in furnishing a quantitative index for the degree of jaundice observed in the various toxic or infectious types; (3) in following the course of jaundice due to any cause, and (4) in demonstrating the presence of latent icterus.

In connection with latent icterus, a number of concrete diagnostic applications may be mentioned. In pneumonia, exophthalmic goiter, the toxemias of pregnancy, or following the administration of chloroform or arsphenamin, high bilirubin values predict the onset of toxic icterus with its important prognostic import. In heart disease, emphysema or arterial hypertension, rising levels of serum bilirubin foreshadow passive congestion of the liver as the result of myocardial failure. In secondary anemias, except those of hemolytic origin, normal bilirubin values are the rule. For example, in differentiating occult carcinoma and pernicious anemia, a high figure would argue for the latter diagnosis provided metastasis to the liver could be excluded. However, in the presence of carcinoma, elevation of the bilirubin value indicates involvement of the liver or biliary passages.

Determinations of the serum bilirubin are most valuable in the differential diagnosis of cases of abdominal colic. As pointed out by Blalock, less than a third of all biliary colic is followed by manifest icterus. In the remainder, not associated with jaundice, diagnosis may be extremely difficult. Following biliary colic, the serum bilirubin is elevated, although not always to a degree or for a length of time sufficient to color the skin or sclerotics. In such cases, the demonstration of latent icterus is diagnostic. We have also seen a few acute cases of severe but unlocalized abdominal pain, in which the finding of serum bilirubin in amounts considerably above the normal has served to establish the diagnosis.

Bile Salts.—Hemolytic jaundice is probably associated with bilirubinemia, or the presence of bile pigments in the blood. In obstructive jaundice, on the other hand, we are dealing with a condition in which bile is absorbed and both bile pigments and bile salts are present in the blood. The possibility of a dissociated jaundice, in which there is an accumulation solely of bile salts in the blood, has long been discussed, particularly by French clinicians. This problem can be solved only by quantitative studies, and so far, there has been no adequate clinical method for the study of metabolism of bile salts. A method for the quantitative study of the bile salts in the blood has been greatly needed. Such a method has recently been developed in our laboratory. It promises to be very useful, and it is hoped that it may aid in establishing the relation of bile salts to hepatic disease.

An increase in the ultramicroscopic fat particles or hemoconia in the serum after a fat meal has been used by Brulé as an index to the presence of bile salts in the intestine. This normal increase does not occur with biliary obstruction. It is obvious that this test gives results roughly comparable to an examination of the stools for bile, and the French clinicians have emphasized its value in determining the presence or absence of obstruction of the common duct. The clinical and experimental studies in the Mayo Clinic have, in general, been confirmatory.

DETOXICATION IN THE BODY

The body possesses a truly remarkable ability to detoxify many poisonous compounds. The conjugation of benzoic acid with glycocoll to form hippuric acid, or the excretion of camphor as camphor glycuronate, are examples of this detoxifying activity that has been ascribed to the liver. As yet, however, there has been no thoroughly satisfactory means for measuring the detoxifying power of the body. More recent experiments indicate that it is not entirely confined to the liver.

Widal has suggested that the liver removes and destroys toxic products of cleavage of the protein which are present in the portal blood, the so-called proteopexic activity. In the presence of hepatic disease, these products enter the general circulation, and a temporary leukopenia or hemoclastic crisis is produced. Widal has utilized the hemoclastic crisis as a test for hepatic function. This test has been employed both clinically and experimentally in the Mayo Clinic, but its diagnostic value has not yet been established.

The delay in the coagulation time of the blood in cases of obstructive jaundice is too well known to require special comment. The value of calcium chlorid intravenously, as a preoperative measure to prevent later hemorrhage, has been amply demonstrated.

EXCRETION OF DYES

Many dyes when injected intravenously are excreted wholly or in part through the bile. Phenoltetrachlorphthalein, rose bengal, methylene blue and mercurochrome-200 soluble are examples. Tetrabromphenolphthalein and tetra-iodophenolphthalein have been used to permit the roentgenographic delineation of the gallbladder. Others have been used as tests of hepatic function. I shall consider only phenoltetrachlorphthalein, as it was the first to be introduced and has been the most thoroughly studied. The value of the different substitutes is yet to be finally established.

When the phenoltetrachlorphthalein test was originally introduced into clinical medicine by Rowntree, Hurwitz and Bloomfield, the attempt was made to measure its excretion in the stools. This work established the specificity of the dye excretion by the liver, and demonstrated the possibilities of employing the method as a functional test. Whipple, Peightal and Clark established its value in experimental injuries of the liver. Later, the method of collecting bile by a duodenal tube was substituted. Neither was wholly satisfactory for routine clinical use. Rosenthal introduced the study of the rate at which the dye left the blood stream. In hepatic disorders, the rate of dye removal is greatly reduced. It is the clinical use of this modified test, the Rowntree-Rosenthal test, that I shall discuss.

The technic of the test is simple. The solution of the dye may be obtained in ampules. One cubic centimeter of this solution is injected intravenously for each 10 kg. of body weight. Fifteen minutes, one hour, and two hours later, blood samples are taken, 5 c.c. at each time being ample. The clear serum is separated, a drop of alkali is added to bring out the color of the dye, and comparison is then made with standard tubes. Normally, the dye is rapidly removed from the blood stream. At the end of fifteen minutes, only from 5 to 7 per cent. remains, while at the end of an hour, only traces of dye are present. In patients with obstructive jaundice, as much as 30 per cent. of the dye may still be present in the blood stream two hours after the injection.

To secure an experimental background for the interpretation of clinical findings, we have studied the changes observed in the elimination of phenoltetrachlorphthalein after the ligation of the common bile duct in dogs. Bile is retained in such animals, the time at which jaundice appears depending on the presence or absence of the gallbladder. These dogs have a progressively increasing degree of dye retention which is found to be parallel to the increase in the serum bilirubin.

The changes observed in man are quite similar. A series of cases of obstructive jaundice due to stone or postoperative stricture of the common bile duct have been studied. Cases of cholecystitis without jaundice showed only the slightest degree of dye retention. With the development of jaundice, the changes in elimination of phenoltetrachlorphthalein became definite and characteristic. In all cases, there was marked retention of dye in the blood stream. As in dogs with experimental obstruction of the common bile duct, the degree of dye retention roughly corresponded to the degree of retention of bile pigment.

Following the operative relief of the obstruction in these patients, there was a rapid decrease in the amount of serum bilirubin and in the degree of dye retention. The serum bilirubin speedily returned to normal. Following the first decrease, however, the phenoltetrachlorphthalein test often showed a moderate but persistent retention of dye. Possibly this is related to the residual hepatitis observed in nearly all patients who have suffered from biliary obstruction for any extended period.

The changes observed in the other clinical varieties of icterus were quite similar to those seen in obstructive jaundice. In acute infectious or catarrhal icterus, in toxic jaundice, whether associated with syphilis and treatment by arsenicals or chloroform anesthesia, in pneumonia, exophthalmic goiter and in acute yellow atrophy of the liver, marked retention of dye is present. Again the degree of dye retention closely parallels the increase in the serum bilirubin. In such cases, icterus is the outstanding manifestation, and it dominates both the clinical picture and the laboratory findings.

The dye test, however, is of greatest clinical value in those cases of hepatic disease in which jaundice is not present. The obstetricians have applied the test in the differentiation of the toxemia of pregnancy from neurotic vomiting and eclampsia of nephritic origin. In the toxemia, the dye test will apparently indicate hepatic changes before the increase in serum bilirubin is established. In carcinoma of the gastro-intestinal tract, normal readings are obtained before extension of the growth begins. Moderate retention was found in a series of cases of carcinoma of the stomach or colon without jaundice, and the surgeon found obvious metastasis to the liver in most of them. The degree of retention of the dye depends, in part, on the extent of the malignant process in the liver, so that a normal test will not positively exclude the presence of small metastatic nodules there.

Definite changes can be shown in cirrhosis by means of the dye test, although the correlation of laboratory findings with the clinical picture must be made with care. The retention of dye has definite diagnostic value in biliary, syphilitic or portal cirrhosis.

The various functional tests contribute but little, from the standpoint of the differential diagnosis of hepatic diseases. This, perhaps, is to be expected, for experience with tests of renal function has likewise demonstrated that functional changes are not necessarily characteristic of the particular etiologic agent.

The liver is an organ with a large factor of safety, for a large proportion of it can be removed experimentally and the remnant will still suffice for normal function. Again, disturbance in one type of physiologic activity does not necessarily indicate commensurate disturbance in other functions of the liver. The presence of a normal amount of bilirubin in the serum and the absence of dye retention will not exclude hepatic disease. Positive tests, on the other hand, are of great value in indicating the probable presence of definite and widespread hepatic damage. Although the present hepatic functional tests are not ideal, their introduction is another milestone on the road to the better understanding of diseases of the liver.

[Editorial Note.—This paper, together with the papers by Drs. Carlson and Mann, which precede it, and three papers, by Dr. Opie, by Drs. McClure and Mendenhall and Mildred Huntsinger and by Drs. Lyon and Swalm, respectively, to appear next week, are part of a symposium on "Liver Function." The discussion will follow the papers to be published in our next issue.]

THE CORRELATION OF FEDERAL HEALTH AGENCIES *

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NEW YORK

Of the hundred or more major administrative units of the national government, at least thirty are concerned directly or indirectly with some phase of the public health. These bureaus or other divisions are scattered through the ten executive departments and the score or so of independent establishments of the United States. Generally speaking, they carry on their activities more or less independently. Of the thirty, only eight have a major and primary interest in public health, the others having a less significant relationship to the subject, for their health or medical activities are usually carried on as secondary to the general scope of the various bureaus.

The public health operations of the federal government were not established all at once, but have grown up by a process of political and administrative evolution extending over a long period of time. A brief historical statement showing the gradual development of these bureaus will be of interest and of value by indicating the manner in which the different departments have availed themselves of favorable opportunities to add health duties to their other functions.

The first important congressional enactment to deal with health was a law of 1798 that authorized collectors of customs to collect 20 cents a month from each American seaman on merchant ships arriving from foreign ports, in order that medical relief might be given to those needing it. Out of this activity grew the Marine Hospital Service, though it was not definitely organized as such until 1870. Many other duties, such as the administration of national quarantine laws, medical inspection of immigrants, and investigations of diseases were added to its responsibilities from time to time, and in 1902 the name of this service was changed to the Public Health and Marine Hospital Service. In the following years, Congress imposed on the service still other duties, more and more of a public health nature, so that in 1912 the name was again changed, this time to the Public Health Service. The many splendid achievements of the bureau, which is today the principal health agency of the federal government, are so well known to all members of the medical profession that there is no need to take the time to dwell on them. It will be noted that the Public Health Service is in the Treasury Department for historical reasons only. The collectors of customs of the same department now collect quarantine charges, inspect vessels for sanitary conditions, and regulate the importation of certain articles, such as meat and drugs, which must conform to certain standards of purity. The domestic regulation of narcotics is administered by the Bureau of Internal Revenue of the Treasury Department.

Except for the creation of a medical establishment in the army, which was authorized as early as 1798, the next medical agency of the government was the hospital for the insane, which was created in 1855 and is now under the Interior Department. In 1873 a medical and education division was set up by the Office of Indian Affairs, though it was in existence for only four years and was not revived as a unit until 1909. Investigations of animal diseases were authorized by Congress in 1878, and this work was gradually extended until 1884, when a Bureau of Animal Industry was established in the Department of Agriculture. Today, much of the operation of this important bureau touches on human health. Ten years later (1894), the Secretary of Agriculture was given an appropriation of $10,000 to conduct investigations in nutrition. At present there is a Bureau of Home Economics, which receives an appropriation of more than $100,000 annually in order to conduct these studies and other work relating to the home.

The collection of national vital statistics was authorized by an act of 1902 and placed under the supervision of the Bureau of the Census of the Department of Commerce. The Food and Drugs Act of 1906 imposed the carrying out of the necessary analytic work on the Bureau of Chemistry of the Department of Agriculture, and another law passed at the same time required the Bureau of Animal Industry to inspect all meat intended for shipment in interstate commerce. The control and licensing of biologic products, however, had been assigned to the Secretary of the Treasury by an act of 1902, and delegated by him to the Public Health Service.

From 1910 on, many other new bureaus with health interests have been created. In that year the Bureau of Mines was established in the Interior Department, and one of its main objectives was to conduct research to benefit the health and safety of miners. The Public Health Service was authorized to detail a medical officer to this bureau in 1917. Also in 1910, a division of school hygiene appeared in the Bureau of Education of the Interior Department. The Bureau of Education likewise has administered medical relief to the natives of Alaska since 1909. A Children's Bureau was created in the Department of Commerce and Labor in 1912, transferred to the Department of Labor in 1913, and its scope was much broadened in 1921, when the federal Maternity and Infancy Act was passed.

Among other bureaus that may be mentioned are the United States Employees Compensation Commission, organized in 1916 to give compensation and medical aid to injured federal employees; the Women's Bureau, established in the Department of Labor in 1920; the United States Veterans' Bureau, which came into being in 1921 to give medical care and vocational rehabilitation, among other things, to ex-service men; the federal Narcotics Control Board, formed in 1922 to administer the act prohibiting the importation of opium except for medicinal purposes; and, finally, the Bureau of Dairying, which was made a separate bureau in the Department of Agriculture in 1923, after having been a division of the Bureau of Animal Industry for many years. A detailed study of all these federal health activities is now being conducted under the auspices of the Institute for Government Research of Washington, D. C., by Mr. James A. Tobey, whose long experience as Washington representative and later secretary of the National Health Council has made him thoroughly conversant with these matters. No attempt has been made to enumerate each and every bureau having a health interest, and more detailed information may be secured by those interested directly from Mr. Tobey.

Proposals that these federal health activities should be effectively coordinated are not new. From 1910 to 1912, an intensive agitation was conducted throughout the country for a national bureau of health with a

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

secretary in the Cabinet. President Taft recommended such a bureau in two of his messages to Congress, and the American Medical Association passed a resolution indorsing the proposition, which was sponsored by the Committee of One Hundred of the American Association for the Advancement of Science. There was some precedent for such a bureau, for at one time the United States did have a national board of health. It was established by Congress in 1879 for a four year period. In 1882 its functions were restricted to the investigation of smallpox, cholera and yellow fever, but no appropriations were made to the board after 1885, and the act creating it was definitely repealed in 1893.

During the World War, President Wilson issued an executive order to the effect that all federal health work, except that conducted by the army and navy, and the industrial hygiene activities of the Bureau of Labor Statistics, should be exercised under the supervision and control of the Secretary of the Treasury, which meant, of course, the Public Health Service. After the war, it was proposed completely to reorganize all the executive departments. The plan that was finally recommended by a joint congressional committee, headed by a representative of President Harding, included a scheme for a new Department of Welfare. In the session of Congress that adjourned last March, this had become a Department of Education and Relief, the only health agency included in the proposed department, however, being the Public Health Service. For many reasons, this plan was thoroughly unsound, though the general reorganization idea contained some excellent provisions. Congress took no action on the matter. The Sixty-Ninth Congress will meet according to law on the first Monday of next December. It is to be hoped that a definite, practical plan, decided on by the medical and sanitary professions, and by experts in political science, agreeable to the bureau chiefs concerned, and with the support of the administration, may be presented to Congress for its approval.

The bureaus that may now be said to have a major interest in national health are: Public Health Service (Treasury); Children's Bureau (Labor); Division of Vital Statistics, Bureau of Census (Commerce); Bureau of Chemistry (Agriculture); Bureau of Home Economics (Agriculture); Bureau of Animal Industry (Agriculture); Division of School Hygiene, Bureau of Education (Interior); Medical Division, Office of Indian Affairs (Interior).

Any plan for the correlation of federal health work must take into consideration these bureaus, though whether all of them or parts of them should be combined in a new department is a matter to be determined only after a most careful study and the consideration of all the factors, administrative, legal and political which enter into the problem. Whatever seems to be the best plan, whether all these bureaus and divisions are brought together or not, there must be worked out some form of efficacious cooperation between them. This might be effected by having a medical liaison officer in any new arrangement that is decided on or by provisions for the assignment of medical and sanitary officers from a central bureau of health to other branches of the government carrying on health activities. At the present time, many of these bureaus are not entirely familiar with the work being done by the others. Though duplication may be more apparent than real, because the field is so vast and diversified, there is, nevertheless, some overlapping and there are also some unfilled gaps.

The promotion of national vitality is as important to the welfare of this country as is commerce, agriculture, industry, finance, foreign affairs, public works, or any other legitimate function of government. Most of these matters have been accorded the recognition due them by having a secretary in the President's Cabinet. The ideal condition would be likewise to have a secretary of public health. It is a question, however, whether it would be expedient at this time to advocate such an arrangement. There should be, however, some high official in charge of all major public health activities of the national government. He might be an assistant secretary for public health in some existing department or in a new one to be established in accordance with the general reorganization scheme, or he might be a commissioner of public health without a seat in the Cabinet, but in charge of an independent establishment. It is almost needless to remark that this officer should be a well qualified sanitarian.

SUMMARY

In this paper, an attempt has been made in a limited time to call attention to the present lack of correlation of federal health agencies, many of which, of course, are accomplishing very valuable and significant results. While making certain general suggestions for coordination, no recommendation for any definite plan is made, for such a suggestion would be premature. The subject will, however, be before the medical and sanitary professions for definite conclusions in the near future and a positive stand should then be taken. For the present, there is no doubt that in the interests of efficiency there must be practical coordination and that this should be brought about as soon as possible. The history of all worth-while social legislation indicates, however, that, no matter what its merits, it requires presentation to several congresses before such measures are finally adopted.

While the care of the public health in this country is, under our form of government, primarily vested in the individual states, the federal government does have certain proper duties, such as those involving foreign and domestic quarantine, interstate commerce, research, revenue matters, and the care of the health of the wards of the government. These duties can undoubtedly be more effective and can contribute more completely to the enhancement of national health and happiness, if they are conducted in a more unified way, thus supplementing the many notable achievements which these federal bureaus already have to their credit.

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ABSTRACT OF DISCUSSION

Dr. W. S. Leathers, Nashville, Tenn.: It is evident that during recent years there has been a definite tendency to reorganize the departments of the federal government with the object of preventing overlapping of functions, and also with a view of economizing public expenditures. In the consideration of federal health agencies there is not so much necessity for the rearrangement and transfer of governmental functions and agencies as the clear understanding of public health needs, the responsibility of the federal government in relation thereto, and additional funds to meet these needs. The equity in our form of government predicates as full autonomy as possible for state and local governments. The authority and duties of the respective state governments should be recognized in any readjustment or reorganization of federal health agencies. For a great many years there has been much discussion with reference to having a national department of health, with a secretary in the cabinet. I think that many of us who formerly were somewhat enthusiastic in this development have come to realize that at least for the present such a step is not advisable. The United States Public Health Service has been and should be the most important governmental agency in the prevention and control of disease and the promotion of the public health. The Public Health Service has, up to the present time, undergone steady and efficient development in the Treasury Department. It seems that this was the most practicable relationship for the health service because of the power and prestige of this department and relative independence enjoyed by the Public Health Service, and also because of its being unhampered by undesirable political considerations. Scientific research is the fundamental function of the federal government in relation to health conservation. It has been indicated that other problems of public health must of necessity devolve largely on state and local authorities, but investigation and research in the etiology and mode of transmission and methods employed in the control of disease and in the elevation of health standards is definitely a function of the federal health service. This does not mean that the Public Health Service and other federal agencies engaged in health work should not cooperate with and assist in every practicable way in the development of state and local health organizations; but there can be no question that the advancement of knowledge relating to health and disease is more distinctively a function of the federal government than the general promotion of public health. This, however, can be accomplished only provided proper facilities and highly trained scientists are available through a more adequate financial support. It seems to me that the outstanding need of the federal government is the bringing together under one roof of all facilities of the Public Health Service in the District of Columbia and their enlargement to meet the constantly increasing demands made on it.

Dr. A. T. McCormack, Louisville, Ky.: Those of us who are familiar with the splendid work being done by the Surgeon General of the United States Public Health Service appreciate particularly the efforts he has successfully made to have lists of officers, with all different activities in Washington compiled, but we realize, as he cannot, that to furnish lists of all the officers of federal bureaus and state health departments, some work has had to be done by other bureaus having relations with public health activities. I agree with Dr. Leathers that much has been accomplished under Dr. Cumming's supervision with so small a staff. We are able to be successful only when we have the charming personality of such a man as our Surgeon General. For many reasons our Public Health Service is outstanding and is recognized by foreign governments at present, but it seems to me of utmost importance that we have a system coordinated; that our scattered bureaus under health and education be permanently organized so that the Public Health Service furnishes not only the arterial system and brain, but in some way the vertebral column of public health, so that impulses that start at the head may go through the entire system in some reasonable degree of time.

Dr. Haven Emerson, New York: The members of this section do not need to be reminded that the American Medical Association through its former Council on Health and Public Instruction and through action of the Board of Trustees has in previous years supported efforts to have federal health activities coordinated, and it seems to me particularly timely that when the President of the United States has given his personal approval to studies designed to accomplish or prepare for adjustment and central direction of these government functions we should take advantage of that point of view, and assist so far as possible in this movement. I therefore offer the following resolution for consideration of this section:

Resolved, That the Section on Preventive Medicine and Public Health request the Board of Trustees of the American Medical Association to appoint a committee to cooperate with other groups, lay or professional, which may have as their objective the central direction of and responsibility for all the health activities of the federal government.

We must proceed conservatively and maintain the view that Dr. Williams has presented. I hope that the section will feel that it is not going beyond our province to express the attitude of the section in this way.

Dr. George M. Kober, Washington, D. C.: I second the resolution, because I believe that some action should be taken and the time is ripe, in view of the fact that Secretary Hoover has broken the ice in the way of consolidation and, in his own department, cooperation; he is a business man and does not believe in duplication and waste, and this will go a great way in helping the movement in which we are deeply interested. I was one of the Committee of One Hundred some fifteen years ago and it fell to my lot to present the first statement before the Senate and House congressional committees, and to educate our legislators in matters relating to preventive medicine. This education was not without results; the Public Health Service has assumed functions it has never attained before, and it seems to me that the time has arrived for a further expansion of national public health work.

Dr. S. W. Welch, Montgomery, Ala.: The remarks of Dr. Leathers were admirable. He expressed appropriately, clearly and positively the feelings of those of us who are actively engaged in public health work. It is a question which we should approach very carefully. I was in Washington last winter when the new welfare bill was under consideration. I do not think that any of us engaged in public health work approved of it. The educational people did not approve of it, and yet it was slated to pass. If it had not been caught in the jam of the Muscle Shoals bill, I think it would have been a law today. I do not think that we should ask Congress to give us a secretary in the cabinet at this time. If we could coordinate all the federal public health activities under one head, as suggested by Dr. Leathers, our difficulties might be solved. At one time I was very much in favor of a secretary of public health in the cabinet, but developments in the last few years have caused me to doubt the wisdom of it.

Dr. Linsly R. Williams, Albany, N. Y.: I have been very much interested to hear the suggestions made in regard to whether or not we should have a secretary at the head of a department of health. I recall very vividly discussing that matter with the secretary of the treasury during Mr. Taft's administration. Mr. McVeagh said to me at that time, "It would be perfectly feasible and proper to have a secretary for the promotion of health now, if it were not for the fact that we would have to have a department of labor as well, and it is not the policy of the government to increase the number of cabinet officers." I remarked to him that it was quite likely that they would have a department of labor any way, and so why not have a department of health also? As you know, the department of labor was not created then, but the Department of Commerce and Labor was, and subsequently it was divided into two departments. At the present time there is a determined movement to create a department of education, the name having been concealed in some way as a department of welfare or the like. Whether there will be a department of education and health, or whether a department of education alone seems to me immaterial; but there is one thing that does seem perfectly definite to those interested in this matter, who were in a measure responsible for Mr. Tobey starting on this study. That is that there must be a definite statement drawn up of functions of every individual bureau, that all these activities and all their preparations be put together into one definite report. Such a report must be printed and widely circulated. When that is done it will then be possible to think out not only what type of organization is really best, but what type of organization is feasible. Whether we have a commission or bureau or what not, it seems to me quite immaterial so long as we have what Dr. Leathers and Dr. McCormack and Dr. Welch have indicated, so long as we have a program of definite activities all under one roof. When that is accomplished I think we shall have gone a long way, whether we have a cabinet officer or not.

Summaries of Original Articles.—The *Archiv für Schiffs- und Tropen-Hygiene, etc.,* has joined the constantly increasing list of those journals which demand that every original article shall be accompanied with a brief summary. Many of them now give summaries in two other languages, but only the Scandinavian *Acta* journals and some of the Japanese ban their own language completely throughout, and use only the three main congress languages.

MECHANISM OF THE ANTIEDEMIC ACTION OF EPINEPHRIN *

J. D. PILCHER, M.D.
CLEVELAND

Epinephrin is widely used against the phenomena of urticaria; the mechanism of this action seems not to have been solved. This question was therefore investigated in a study of the phenomena of wheal production from the intradermal injection of codein solution; such an injection of codein (0.15 c.c. of a 1: 1,000 solution in saline solution) forms a wheal averaging about 1.3 cm. in diameter surrounded by a flushed area about 4 cm. in diameter, the reaction being practically indistinguishable from an urticarial lesion of similar size which often follows the injection of therapeutic serums. The reaction attains the maximum within from ten to fifteen minutes and has usually faded entirely in an hour or thereabouts. The edema of the wheal site is due to increased permeability of the minute skin vessels.[1] The experiments were made on a number of infants and children and the results are as follows:

An intramuscular injection of epinephrin (from 0.15 to 0.3 mg.) distinctly lessened the wheal formation of codein and hastened the absorption of the edema fluid, whether the epinephrin injection preceded the codein injection by two or three minutes, the two were given simultaneously, or the epinephrin was given two or three minutes after the codein injection.

SIMULTANEOUS INJECTIONS OF EPINEPHRIN AND CODEIN SOLUTIONS

When the reagents are injected in the same solution, a concentration of epinephrin of 1: 10,000 had little if any primary effect on the codein (1: 1,000) wheal formation but did somewhat hasten the disappearance time of the wheal. Even with epinephrin 1: 1,000, the wheal reaction was not greatly modified. However, from ten to fifteen minutes after the mixed fluids were injected, a narrow border of blanching appeared about the wheal border and gradually the entire wheal area was blanched; this persisted the usual time for these dilutions of epinephrin (from two to four hours). Although epinephrin 1: 100,000 blanches skin for an hour or longer, when given mixed with codein 1: 1,000, no blanching at all appeared. Histamin 1: 5,000 in epinephrin 1: 10,000 solution gave results identical with codein.

CODEIN INTO EPINEPHRIN BLANCHED SKIN

When a codein injection was made into the center of an area of blanched skin 5 by 8 cm., a wheal 1 cm. in diameter was formed, considerably smaller than the normal and surrounded by a narrow flushed border; the disappearance time was shortened. With a blanched area 3 by 3 cm., the codein action broke through the partial epinephrin "block" at one border of the wheal, and the flush extended beyond the blanched area. When the codein phenomenon faded, the blanching of epinephrin returned and persisted for several hours. With more dilute epinephrin solutions, the effect was much less marked.

In view of the fact that the systemic action of epinephrin (from intramuscular injections) lessened codein wheal formation, although the concentration of epinephrin at the wheal site must have been very low, while the local action of epinephrin in high concentrations was slight, the effect of local injections of epinephrin in concentrations that caused no visible paling of the skin was investigated. It was considered possible that the local applications of such low concentrations of epinephrin might influence the codein action; such was not the case, however, for intradermal injections of epinephrin, one part in a billion (one part in one hundred million causes blanching), in no way modified the action of codein subsequently injected into the same site.

MECHANISM OF THE EPINEPHRIN ANTAGONISM

These observations show that epinephrin locally has very little or no effect on the wheal production unless it is injected in concentrations that actually arrest the local circulation; while the intramuscular injection decreases the wheal production very markedly, although the concentration of epinephrin is very much lower. This suggests that the antiedemic action of epinephrin is not a direct local effect, but that it is a secondary result of some unexplained systemic action. The existence of a systemic reaction with these doses of epinephrin was manifested in some cases by distinct pallor of the skin as a whole and by vomiting. Analogous antiedemic effects of epinephrin have been described for mustard-oil conjunctivitis,[2] for paraphenylendiamin [3] and clinically for various urticarias. Petersen, Levinson and Hughes [4] have discussed the effects of epinephrin on cell permeability, but their results do not appear to have been uniform.

CONCLUSION

The antiedemic action of epinephrin is due to a systemic and not a local action. The nature of the systemic action is not explained.

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* From the Babies and Children's Hospital and the Department of Pediatrics of Lakeside Hospital and Western Reserve University.

[1] Lewis, T., and Grant, R. T.: Heart **11:** 209 (May) 1924.

[2] Hirschfelder, A. D.: Am. J. Physiol. **70:** 507 (Nov.) 1924.

[3] Tainter, M. L., and Hanzlik, P. J.: J. Pharmacol. & Exper. Therap. **24:** 179 (Oct.) 1924.

[4] Petersen, W. F.; Levinson, S. A., and Hughes, T. P.: J. Immunol. **8:** 323 (Sept.) 1923.

SYNERGISM OF MAGNESIUM SULPHATE AND MORPHIN AND MAGNESIUM SULPHATE AND ETHER *

JAMES T. GWATHMEY, M.D.
NEW YORK

When anything new in medicine or surgery is proposed, it is natural and obvious that it will be criticized. Such criticism, to be of value, should be unbiased and accurate; otherwise, false and misleading statements occur.

In 1898, the late Samuel J. Meltzer of the Rockefeller Institute made the surprising discovery that 2 drops of a 5 per cent. solution of magnesium sulphate injected intracerebrally in a rabbit produced complete anesthesia and relaxation lasting several hours. In their first publication in 1905, Meltzer and Auer [1] made the general statement that the salts of magnesium are capable of inhibiting the entire nervous system, and assumed in particular that these salts are also capable of producing *anesthesia and other inhibitory effects on* the central nervous system. This first publication led to an extensive literature on the subject. Some of the writers insisted that magnesium exerts only a curare-like action; others criticized from other angles. Finally,

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*A reply to an article by Beckman, Harry: The Alleged Synergism of Magnesium Sulphate and Morphin, J. A. M. A. **85:** 332 (Aug. 1) 1925.

[1] Meltzer, S. J., and Auer, J.: Physiological and Pharmacological Studies of Magnesium Salts, I, General Anesthesia by Subcutaneous Injections, Am. J. Physiol. **14:** 366 (Oct.) 1905.

Meltzer and his co-workers established definitely the anesthetic properties of magnesium sulphate in both animal and man.

Table 1.—*Case Illustrating Difference Between Magnesium Sulphate and Plain Water When Used with Morphin*

Badly lacerated wound of leg, gas infection, opened wide December 1; gastrocnemius severed.

December		Duration, Hours
2.	1: 15 a. m. Morphin, 1/5; $MgSO_4$, 2 c.c., 25 per cent.; quiet until 5	5¾
	6: 15 a. m. Morphin, 1/12; $MgSO_4$, 2 c.c., 25 per cent.; no pain all day	18
	The magnesium was now discontinued. Morphin alone used.	
3.	1: 30 p. m. Morphin, 1/6; pain in two hours	2
	3: 25 p. m. Morphin, 1/6; pain at 6: 40 p. m.	3¼
	The magnesium was again added to the morphin.	
	6: 55 p. m. Morphin, 1/6; $MgSO_4$, 25 per cent., 2 c.c.; no pain till next day	23
4.	5: 00 p. m. Morphin, 1/10; $MgSO_4$, 2 c.c., 25 per cent.; no pain till next a. m.	17
5.	10: 15 a. m. Morphin, 1/10; $MgSO_4$, 3 c.c., 25 per cent.; quiet all day	10
	8: 15 p. m. $MgSO_4$, 3 c.c.; very good night	19
6.	3: 50 p. m. $MgSO_4$, 3 c.c., 25 per cent.; severe pain after three hours	3
	6: 15 p. m. Morphin, 1/8; $MgSO_4$, 2 c.c., 25 per cent.; jerking of leg in two hours	2
	9: 15 p. m. Morphin, 1/8; $MgSO_4$, 2 c.c., 25 per cent.; quiet night	19
	The patient required one hypodermic of morphin, 1/10 to 1/6, and $MgSO_4$, 2 c.c., 25 per cent., each day after this until December 13. Codein and morphin alone did not give relief.	

Table 2.—*Synergism of Morphin and Magnesium Sulphate*

Patients Receiving Magnesium Sulphate and Morphin

No.	Operation	Time of Postoperative Sedative, Hours
1	Direct hernia	None
2	Double inguinal hernia	32
3	Carcinoma of rectum	20
4	Carcinoma of rectum	28
5	Acute appendicitis; general peritonitis	30
6	Incarcerated hernia	24
7	[illegible]	17
8	[illegible]	13
9	Carcinoma of stomach	13
10	Ischiorectal abscess	12
11	Chronic appendicitis	12
12	Chronic appendicitis	12
13	Chronic appendicitis	10
14	Chronic appendicitis	5
15	Inguinal hernia	4
16	Lacerated wound of leg	3
	Total elapsed time	244
	Average time	16 hours, 16 min.

Parallel Series of Patients Receiving Morphin and Water Alone

No.	Operation	Time of Postoperative Sedative, Hours
1	Ischiorectal abscess	None
2	Carcinoma of rectum	None
3	Hernia	15
4	Incarcerated hernia	10
5	Chronic appendicitis	3
6	Acute appendicitis	2
7	Chronic appendicitis	6
8	Double hernia	3¼
9	Left inguinal hernia	3
10	Chronic appendicitis	2
11	Carcinoma of rectum	2
12	Chronic appendicitis	1½
13	Carcinoma of stomach	1
14	Acute appendicitis	½
	Total elapsed time	49¼
	Average time	4 hours, 6 min.

The synergism between magnesium sulphate and morphin was first observed in the laboratory by E. J. Pellini[2] of the University and Bellevue Hospital Medical College and immediately applied in the clinic, where its value was proved beyond question by trained observers.

The case presented in Table 1, from A. V. S. Lambert's[3] service of the Presbyterian Hospital, New York, illustrates the difference between magnesium sulphate and plain water when used with morphin.

From this protocol it may be concluded that when the magnesium sulphate (from 2 to 4 c.c. of a 25 per cent. chemically pure solution) is used with morphin, the value of the morphin is increased from 50 to 100 per cent. By either increasing or repeating the dose of morphin with sterile water, its action is intensified but not prolonged, as when used with magnesium sulphate.

Table 2, prepared from a number of cases selected at random from more than 200 similar cases at the Presbyterian Hospital, still further illustrates the synergism of morphin and magnesium sulphate as "occurring in man."

Table 3.—*Comparative Results Obtained by Smythe*

Patients Receiving Magnesium Sulphate and Morphin

No.	Operation	Time of Postoperative Sedative, Hours
1	Colpoperineorrhaphy	None
2	Appendectomy and cholecystectomy	None
3	Appendectomy	12
4	Appendectomy and cholecystectomy	3
5	Appendectomy	10
6	Perineorrhaphy	12
7	Cholecystectomy	16
8	Hysterectomy and double oophorectomy	9
9	Secondary closure	None
10	Nephrectomy	28
11	Hysterectomy	None
12	Perineorrhaphy, appendectomy, ventrosuspension	5
13	Appendectomy	None
14	Appendectomy	None
15	Appendectomy	24
16	Appendectomy	12
17	Radical breast	None
18	Appendectomy and Schroeder's operation	12
19	Appendectomy	4
20	Schroeder's operation	None
21	Perineorrhaphy	4
22	Hysterectomy, colporrhaphy, perineorrhaphy	17
23	Appendectomy and cholecystectomy	12
24	Appendectomy and dilatation of cervix	None
25	Appendectomy and cholecystectomy	32
26	Separation of adhesions, omental graft under liver	6
27	Barrett's operation, separation of adhesions	36
	Total lapse of time before postoperative sedative	255
	Average lapse of time	15

Parallel Series of Cases Without Magnesium Sulphate

No.	Operation	Time of Postoperative Sedative, Hours
1	Cholecystectomy	12
2	Cholecystectomy	8
3	[illegible]	4
4	[illegible]	2
5	Appendectomy	12
6	Appendectomy	3
7	Appendectomy	1
8	[illegible]	None
9	[illegible]	1
10	[illegible]	2
11	[illegible]	2
12	[illegible]	1
13	[illegible]	3
14	Freeing adhesions	12
15	Repair of hernia	2
16	Radical cure hernia	None
17	Herniotomy	11
18	Herniotomy	None
19	Removal of appendix, ovary, tubes and uterus	1
20	[illegible]	12
21	[illegible]	None
22	[illegible]	2
23	[illegible]	2
24	[illegible]	3
25	Hysterectomy	7
26	Cesarean section	4
27	Cesarean section	3
	Total lapse of time before postoperative sedative	110
	Average lapse of time	4+

Table 3 gives a clean-cut picture of the comparative results obtained by Smythe[4] in 1922 and 1923, employing three hypodermic injections of one-eighth grain (8 mg.) of morphin dissolved in 2 c.c. of a 25 per cent. solution of magnesium sulphate, with 1/150 grain (0.4 mg.) of atropin added to the second dose, given at twenty minute intervals as a preliminary to nitrous oxid-oxygen and procain anesthesia for general operations. One third of the patients thus prepared did not require an analgesic after operation. The table shows that the patients go on an average four times as long after an operation before an analgesic is required than patients who were given morphin dissolved in sterile water alone. Smythe states that the patient is neither frightened nor apprehensive concerning the operation or its outcome. The stage of induction is greatly shortened and there is rarely a period of excitement. The patient remains pink throughout the operation; the pulse rate rarely exceeds 90, generally varying from 80 to 84. The appetite returns earlier in patients operated on when magnesium sulphate had been employed because of the absence of pain and restlessness incident to the trauma inflicted at operation.

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[2] Gwathmey, J. T.: Synergistic Colonic Analgesia, J. A. M. A. **76**: 222 (Jan. 22) 1921.

[3] Gwathmey, J. T.: Anesthesia, New York, the Macmillan Company, 1924, pp. 640-665.

[4] Smythe, F. D.: Further Experiences with Synergistic Analgesia, J. Tennessee M. A. **15**: 97 (June) 1922; Synergistic Analgesia, Am. J. Surg. (Anesthesia Supplement) **37**: 85 (July) 1923.

Harmon,[5] also has published accurate comparative data showing the synergism between magnesium sulphate and morphin occurring in man. He states that when the patient is given morphin in divided doses in magnesium sulphate solution prior to operation, there is a greater postoperative comfort, less nausea and vomiting; and a decreased amount of morphin is required.

Gwathmey,[6] in 1921, defined precisely the difference between the synergism of magnesium sulphate and morphin and the synergism between magnesium sulphate and ether: "It seems to act mechanically with morphin, holding it in contact with the tissues longer than the morphin can maintain such contact alone; but with ether the magnesium sulphate acts by deepening or increasing the effect rather than by prolonging it."

The synergism between magnesium sulphate and ether was demonstrated conclusively by Meltzer and Auer,[7] in 1913, when they observed that, after the intramuscular injection of one half or less of the anesthetic dose of magnesium sulphate, rabbits and dogs are readily and deeply anesthetized by inhalations of small doses of ether which are insufficient to anesthetize normal animals. In the experiments which they reported, rabbits were given 0.6 gm. (or less) and dogs 0.8 gm. (or less) of magnesium sulphate per kilogram. With these small doses the animals were only slightly affected; if ether was insufflated eight or ten minutes after such an injection, the animals became deeply anesthetized. The dose of ether that was sufficient to cause deep anesthesia was hardly a tenth of the dose that was otherwise required for a similar deep anesthesia without the help of magnesium sulphate. *By the administration of smaller doses of magnesium sulphate and ether, the first stage anesthesia was reached and maintained; that is, complete lack of sensation and the necessary general relaxation for all surgical procedures with the maintenance of special reflexes and without any peripheral paralysis.* Meltzer and Auer, in 1913, in collaboration with Peck and Elsberg, employed the combination clinically in seven cases. The patients were given from 0.4 to 0.6 gm. of magnesium sulphate per kilogram intramuscularly, which was less than half of the effective dose. The ether was administered by endotrachael insufflation. In no case did the patients retain a spark of consciousness even when the concentration of ether in the insufflation was about one sixth of the concentration usually employed. In all the cases there was complete relaxation of the muscles, and in no case was there even the slightest indication of pain while operations were being done in deep, sensitive places, as for example in radical breast amputations or radical removal of extensive, deeply located gland swellings in the neck and laparotomies with manipulation of the parietal peritoneum or gallbladder. With small doses of magnesium sulphate and very lightly maintained ether insufflation, there was often present a certain degree of lid reflex, even at times a spontaneous movement of the lids, without the slightest reaction to the operation on the part of the patient. In such cases the patient awoke shortly after the interruption of the administration of ether and the removal of the insufflation tube, but he could in no way remember the proceedings during the operation.

Gwathmey and Hooper,[8] in quantitative experiments, have found that the intravenous administration of less than one half the anesthetic dose of magnesium sulphate combined with approximately one ninth the anesthetic dose of ether produces surgical anesthesia without increasing the toxicity of the combination. A brief abstract of the experiments follows:

When 6 per cent. ether in physiologic sodium chlorid solution was injected into the internal saphenous vein of the albino rat, the average anesthetic dose was 744 mg. per kilogram, but the minimum lethal dose was over 2½ times 744, or 1,892 mg. per kilogram, indicating a wide margin of safety. When a 6 per cent. solution of magnesium sulphate was given, the same technic being used, the average anesthetic dose was 185 mg. per kilogram, and the average minimum lethal dose was 190 mg. per kilogram, showing a margin so narrow that it would be unsafe to use magnesium sulphate alone as a general anesthetic. If, however, a 6 per cent. ether and 6 per cent. magnesium sulphate solution in physiologic sodium chlorid solution is given, the average anesthetic dose is 170.8 mg. per kilogram, and the average minimum lethal dose is 344.4 mg. per kilogram; i. e., the lethal dose is more than twice the amount of the anesthetic dose, giving a wide margin of safety.

If this combined anesthetic dose, 170.8 mg. per kilogram (ether, 6 per cent.; magnesium sulphate, 6 per cent.) is analyzed, we get the result given in Table 4.

TABLE 4.—*Analysis of Combined Anesthetic Dose*

170.8 mg.	85.4 mg. ether equals 11.48 per cent. anesthetic dose ether alone (744 mg.).
	85.4 mg. $MgSO_4$ equals 46.16 per cent. anesthetic dose $MgSO_4$ alone (185 mg.).

Total, 57.64 per cent. of combined calculated anesthetic dose (296.32 mg.).

Therapeutically, 11.48 + 46.16 equals 100 instead of 57.64 (definite synergism).

The toxicity of ether and magnesium sulphate in combination is a simple summation of the toxicities of the two compounds, as shown in Table 5.

TABLE 5.—*Toxicity of Ether and Magnesium Sulphate in Combination*

344.4 mg.	172.2 mg. ether equals 9.1 per cent. M. L. D. ether alone (1,892 mg.).
	172.2 mg. $MgSO_4$ equals 90.6 per cent. M. L. D. $MgSO_4$ alone (190 mg.).

Total, 99.7 per cent. of combined calculated M. L. D. (345.4 mg.).

From these results we may conclude that ether and magnesium sulphate act synergistically in producing anesthesia without producing any increase in toxicity.

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[5] Harmon, M. S.: Preoperative Narcotics, Current Researches in Anesthesia and Analgesia **4**: 15 (Feb.) 1925.

[6] Gwathmey, J. T.: Current Progress in the Science and Practice of Anesthesia, J. A. M. A. **77**: 421 (Aug. 6) 1921.

[7] Meltzer, S. J., and Auer, J.: Ueber die anästhetische und lahmende Wirkung von Magnesium unterstützt durch Aether, Zentralbl. f. Physiol. **27**: 632, 1913.

[8] Gwathmey, J. T., and Hooper, C. W.: Synergistic Analgesia and Anesthesia with Special Reference to Magnesium Sulphate, Ether, Morphine and Novocaine, J. Lab. & Clin. Med. **10**: 641 (May) 1925.

Subcutaneous experiments with the albino rat demonstrated that the addition of 2.5 per cent. procain to the magnesium sulphate solution (50 per cent.) or to the magnesium sulphate solution with morphin increases the efficiency, definitely prolongs the effect, and allays irritation, without increasing toxicity. The synergism between magnesium sulphate and procain is definite because procain in itself produces no general analgesic action when injected subcutaneously in the albino rat. The addition of 2.5 per cent. procain increased the efficiency of the magnesium sulphate approximately 50 per cent. The combination of magnesium sulphate (50 per cent.) with procain (2.5 per cent.) may be a good substitute for morphin in general practice. A simple and convincing experiment for any physician is to compare the results produced on the same patient by an injection of one-eighth grain of morphin dissolved in sterile water with those produced with one-eighth grain of morphin dissolved in 2 c.c. of sterile magnesium sulphate solution (50 per cent.) with procain (2.5 per cent.).

If the addition of magnesium sulphate did no more than prolong the morphin effect it would be of great value to the anesthetist. The clinical effects, however, are of even greater importance.

1. The respirations of a patient receiving two or three injections of morphin (one-eighth grain) dissolved in 2 c.c. magnesium sulphate solution (50 per cent.) usually average twenty (normal).
2. The addition of the magnesium sulphate shortens the time of induction, gives a smoother anesthesia and decreases the amount of the anesthetic.
3. Postoperative nausea and vomiting is reduced and in many cases is completely abolished.
4. Wound and gas pains are more often absent and as a result convalescence is shorter and more agreeable.
5. The amount of postoperative morphin is reduced to a minimum.
6. When ether is employed as the anesthetic, the synergists save life. The following experiment is taken from a paper by Gwathmey and Hooper yet to be published: Four healthy albino rats were employed for each experiment. Two of the animals were given intramuscularly 0.8 c.c. per kilogram magnesium sulphate solution (50 per cent.) with procain (2.5 per cent.) and morphin (one-eighth grain in 2 c.c.). The other two animals served as controls and were not given anything. Ten minutes after the preliminary injections, all four animals were placed in the same gas chamber and given exactly the same ether vapor. The controls jumped around and struggled against the anesthetic and finally died within from eight to ten minutes. The synergized animals were anesthetized quickly and quietly and did not die within eight or ten minutes but survived the anesthetic for from twenty to twenty-five minutes. This experiment was repeated several times and always with the same results.

CONCLUSIONS

1. Satisfactory evidence is submitted to show that synergism between magnesium sulphate and morphin *does* occur in man. This evidence was in existence before the present discussion.
2. This synergism, with laboratory animals, is life saving when ether vapor is used as the anesthetic.
3. The synergism between magnesium sulphate and ether has been established for the albino rat, rabbit, dog and man. When properly applied the dose of ether sufficient to produce and maintain satisfactory anesthesia is reduced by one-half or more.

40 East Forty-First Street.

POSTENCEPHALITIC TIC OF THE DIAPHRAGM

PULMONARY OVERVENTILATION, AND RELIEF BY BLOCKADE OF PHRENIC NERVES *

C. J. GAMBLE, M.D.
O. H. PERRY PEPPER, M.D.
AND
G. P. MULLER, M.D.
PHILADELPHIA

This case deserves to be recorded not only because of its own clinical interest, but also because it exemplifies so well the modern method of coordinated team work in the study and treatment of an obscure case. The hospital records of the case include contributions from a variety of sources, each of help in arriving at the final diagnosis or in the treatment. Some might perhaps have been dispensed with and short cuts taken, but only at the expense of thoroughness and certainty.

REPORT OF CASE

A man, aged 38, of Polish birth, was primarily referred in March, 1925, by Dr. C. E. Ervin of the Geisinger Memorial Hospital of Danville, Pa., to Dr. C. H. Frazier in the surgical clinic of the University Hospital. The patient, in November, 1924, had had an illness which was probably acute epidemic encephalitis. The definite symptoms at that time had been pains in the head, back and extremities, with some weakness of the left hand and perhaps of the right side of the face. The hands had shown a tremor. The patient believed that he had been delirious for some little time but did not know how long. From this illness he slowly improved, until, Jan. 13, 1925, he first noticed some disturbances of respiration. He seemed to be breathing fast and hard, he said, and for comfort had to be propped up against several pillows. It was this disturbance of respiration which took him to the Geisinger Memorial Hospital and which led to their referring him to the University Hospital.

In March, under Dr. Frazier's care in the neurosurgical clinic, the patient was very carefully studied, and the following positive findings were discovered:

1. Vague hemianesthesia of the right side of the body.
2. Slight impairment of the seventh and eighth nerves.
3. Horizontal nystagmus. Left pupil negative to light, right pupil sluggish to light.
4. Spinal fluid pressure, 15 mm.
5. Negative Wassermann reaction.
6. Marked tachypnea, with no explanation for this in the examination of the heart or lungs. With each movement of the chest there was at times a slight partial closing of the left fist.

A careful laryngeal examination was performed by Dr. Gabriel Tucker, and no cause for the dyspnea was discovered. A thorough vestibular examination by Dr. Fischer revealed no symptoms of intracranial trouble. Roentgenologic examinations were made of the head for the pituitary fossa and for the sinuses and mastoid region, also of the chest. All of these were negative except for some clouding of the left mastoid. The surgical staff then referred the patient to the medical clinic for further study.

On examination in the medical clinic, it was noted that the patient was "dyspneic" and that the respiratory rate was 84 to the minute. However, he lay flat in bed and was not cyanotic. He complained of pain in the left arm from the shoulder to the elbow and of soreness of the right arm. He also was made very miserable by the distress which the disturbed breathing gave him.

The routine physical examination revealed little else than the findings already recorded, which were thought to be sequelae of the attack of encephalitis. A tremor of the outstretched hands was present, especially on the left, and some ataxia and weakness of the left hand. The routine laboratory tests were all normal.

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* From the Hospital of the University of Pennsylvania.

A careful study of the disturbance of breathing was made by one of us (C. J. G.), with pneumographic tracings taken of the chest and abdomen simultaneously. Apparently the following conclusions were justified:

1. The rapid chest movements which had been counted as respirations were slight excursions of the thorax which tended to follow the frequently repeated tic or spasm of the diaphragm. This tic occurred as a rule between 60 and 90 times a minute. It was not synchronous with the heart rate. The chest appeared to drop a beat occasionally, so that its frequency of expansion was slightly below that of the diaphragm.
2. Under conditions requiring increased ventilation such as immediately following a prolonged holding of the breath, the thoracic excursion fell into an exact 2 to 1 rhythm, an inspiration following immediately after every second tic. This condition was also observed on numerous occasions while the patient slept. It was also present throughout one day while the patient was awake. No cause could be discovered for the change in this rhythm or for the return to the more usual one on the succeeding day. The slower respiration was accompanied by greater subjective comfort and a more normal blood analysis, as shown in the accompanying table.
3. Holding the breath abolished the movements of the chest, but the tic continued without change. Neither morphin sulphate, one-third grain (0.02 gm.), nor scopolamin or atropin had any effect on the tic.
4. When, under the fluoroscope, the patient was instructed to take a deep breath, the diaphragm could be seen moving in inspiration and expiration, with the more frequent minor contractions of the tic superadded to the larger excursion. When the breathing was not voluntarily controlled, the only motion of the diaphragm was the tic.

It was suggested that the diaphragmatic tic might be producing sufficient pulmonary ventilation to render normal respiratory movements unnecessary. Studies were therefore requested of the department of research medicine to reveal whether this hypothesis was tenable, and were carried out by Dr. J. Harold Austin, the head of that department:

Two specimens of blood were analyzed, one taken when the chest movements were at the rate of 70 per minute, the second when the rate of the coarser movements was 36 per minute, although the tic was at its usual rate.

Results of Blood Analysis

	March 20 Respiratory Rate 70	March 27 Respiratory Rate 36	Normal
Carbon dioxid of venous serum (corrected for oxygen unsaturation)	57 per cent. by volume	62 per cent. by volume	40-60 per cent. by volume
p_H of arterial blood........	7.55	7.43	7.3-7.5
Carbon dioxid tension of arterial blood	18 mm.	40 mm.	35-45 mm.

These figures reveal a shift of the reaction of the blood toward the alkaline side, in this instance in all probability due to the pulmonary overventilation with the excessive blowing off of carbon dioxid, which is evident from the conspicuous lowering of the carbon dioxid tension, and the fact that if the blood of the first date had been saturated at 40 mm. carbon dioxid tension, its serum would have had approximately the p_H and carbon dioxid content of the second specimen. Such a change in the reaction of the blood might be expected to result in the elimination of alkali in the urine as a compensatory or balancing mechanism. The urine of this patient was therefore examined and found to be alkaline to litmus and to have a p_H of 7.3, which is a shift well toward the alkaline side (the normal range of urinary p_H being from 5.0 to 7.5).

These studies confirmed the view that there was overventilation going on as a result of the tic with the synchronous and rapid respiratory movements. The respiratory center was not receiving normal stimuli to respiration and was not sending out strong rhythmic impulses. It seemed possible that there was no actual damage of the respiratory center itself, as might be feared after encephalitis (postencephalitic respiratory syndrome), but that the respiratory disturbance was wholly secondary to the overventilation induced by the diaphragmatic tic. If this were so, an abolishment of the tic should restore the breathing to normal.

In postencephalitic singultus (epidemic hiccup), relief has been obtained by blockage of the phrenic nerves by injection of procain or alcohol, or by freezing the nerves or even by their section. This apparently radical procedure does not disable the diaphragm as much as might be anticipated at first, perhaps because of the innervation of the peripheral part of the diaphragm by the intercostal nerves. The similarity of the present case to one of epidemic hiccup and the patient's distress seemed to justify the suggestion that blockage of the phrenic nerves be attempted.

Consultations were therefore requested with Dr. William G. Spiller, professor of neurology, and with Dr. G. P. Muller of the surgical service. Dr. Spiller agreed with the diagnosis of encephalitis as the basis for the trouble, but was not enthusiastic over the nerve blockage, probably believing that this was but one of several results of the encephalitis and that the tendency of such lesions was to be progressive. Dr. Muller gave the opinion that the blocking of the phrenic nerves could be easily performed, and with little danger. The patient was therefore transferred back to the surgical service for operation.

April 4, Dr. G. P. Muller performed the following operation: Through a small incision on each side of the neck, the phrenic nerve was exposed and frozen with ethyl chlorid spray. The incisions were closed without drainage. During the operation it was noted that the respiratory rate fell from 96 per minute to 20 per minute. A fuller report of this case from its surgical aspects will be made later by Dr. Muller in connection with other observations on the diaphragm.

At once on recovering from the ether anesthesia, the patient expressed his delight at his relief from respiratory distress, and this relief has persisted to date (October 27), a period of almost seven months.

Tracings taken by Dr. Gamble now showed normal respiratory movements, and in the fluoroscope the diaphragmatic movements could not be distinguished from those of a normal person with a small excursion. No tic could be observed. The breathing was apparently normal in every way. The respiratory rate was never rapid. When the breath was held the chest was entirely quiet and none of the jerky movements, which the tic had formerly caused, could be seen. There was no dyspnea or discomfort after climbing three flights of stairs in thirty seconds. No chemical studies were made after the operation.

The patient expressed himself as so much relieved and so comfortable that he insisted on leaving the hospital with the avowed intention of going back to work. He was allowed to leave after being warned that the relief might prove transitory, for it is known that freezing abolishes nerve function for only six to ten months, after which period the tic may return

COMMENT

It is apparent that the relief given this patient was merely symptomatic and perhaps only temporary, and that it will have little or no effect on the course of the disease. On the other hand, the patient did obtain great comfort, and a complete relief from the symptom which was his chief complaint, and a return to economic usefulness. This was well worth while.

The correct analysis of this case depended primarily on the recognition that the so-called rapid breathing was not due to frequent normal respiratory movements but to definitely abnormal spasmodic contractions of the diaphragm. Once this observation was confirmed by fluoroscopic examination and by pneumographic tracings, it was possible to test the correctness of our hypothesis by chemical analysis of the blood and urine. With this added evidence we were justified in taking a step, which at first glance might seem very radical, but the safety of which had been proved and for which there was good anatomic and physiologic basis.

Skill and technic were required to perform the delicate surgical operation and the special examinations reported above. It is only by such cooperative investigation that the best results, in many cases, can be obtained; and the present report, as was said at the outset, is submitted not only because the case is rare and interesting, but because it illustrates a successful application of intensive cooperative investigation.

Clinical Notes, Suggestions, and New Instruments

FISH LINE SUTURES

GEORGE F. CHANDLER, M.D., KINGSTON, N. Y.

For the last two years, I have been using ordinary "Starling" braided silk black fish line for all skin sutures and for all conditions, such as retention sutures in the perineum, which have been commonly made with silk or silkworm gut. Every surgeon to whom I have suggested it and who has used it is enthusiastic.

Silk swells continuously under moisture of the tissues and therefore is hard to remove, usually causing pain. Silk-worm gut cuts the tissue. Linen shrinks and allows the skin coccus to enter alongside the suture, frequently causing stitch abscess.

It occurred to me that the makers of fish line must have developed a structure that would act well in moisture. Experience has taught that boiling makes no difference with the line, and that it can be boiled and boiled again without harm or change. The large size of this suture makes it possible to support the skin incision, if it is used as a chain suture, with very few perforations of the needle. Six or eight locked sutures in an abdominal incision are enough, and they can be removed with absolute ease on the tenth day, leaving a very beautiful scar. Also, time can be saved in closure.

The moderate cost of this line, or suture, is another advantage. At the Kingston City Hospital, we buy it in boxes containing 100 yards each, at a cost of between 2 and 3 cents a yard. We use the Swastika brand, Size 5 F, but this is not necessarily the only one that may be suitable.

11 East Chestnut Street.

DRAINAGE OF THE GALLBLADDER

CHARLES W. MOOTS, M.D., TOLEDO, OHIO

As the technic presented here has never come to the notice of myself or my local friends, it may be of interest to the profession generally. I have used it in cases demanding drainage of the gallbladder when the much preferred operation of cholecystectomy was frankly contraindicated.

A man, aged 44, with a typical history of attacks of gallstone colic, was operated on, Aug. 20, 1925, at Mercy Hospital. When the abdomen was opened, the gallbladder looked and felt healthy, except that it contained five stones. The appendix was found to be in a state of subacute inflammation. What was more serious was the finding of the entire pancreas fully 50 per cent. increased in size, the surface being smooth, however.

The latter finding decided against removal of the gallbladder, and after the stones were removed, it was drained with three-fourths inch rubber tube, well held in by two rows of chromic catgut in such a manner as to turn the serosa against the tube. The appendix was then removed, and the wound closed. The patient was in a good condition; the systolic blood pressure was 120; diastolic, 80.

The patient did well for forty hours, at which time emesis began and recurred from every ten to fifteen minutes for the following twenty-four hours, when his condition became alarming, and the usual treatments failed to give relief. The emesis always had some bile, and finally had a fecal odor. There was great abdominal distention. I tested out the patency of the rubber drainage tube, gallbladder, cystic duct and common duct by slowly and carefully injecting, by means of a glass syringe, a warm boric acid solution through these structures. The patient was able to tell me when the solution reached the duodenum.

I then placed in the glass syringe a 2 ounce (60 c.c.) saturated solution of magnesium sulphate and slowly injected all of it into the duodenum through the drainage tube, gallbladder, cystic duct and common duct. Within forty-five minutes, the patient had a copious, watery stool, with evacuation of much gas, and was at once relieved of all bad symptoms, being able to take fluids freely. He slept all night, with no other medication. The following morning his condition was good, but the same treatment was repeated in order to watch the results. Another free movement of the bowels occurred, followed by a feeling of well being, which continued until his departure for home sixteen days later.

The following precautions are advisable:

(*a*) One should make sure that there can be no leaking about the tubing where it is stitched into the gallbladder.

(*b*) It should be ascertained whether there is any formidable obstruction in the cystic or the common duct.

2485 Collingwood Avenue.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

ARSPHENAMINE-D. R. L. (See New and Nonofficial Remedies, 1925, p. 47).

The following dosage forms have been accepted:

Arsphenamine-D. R. L., 0.3 Gm. Ampules.
Arsphenamine-D. R. L., 0.5 Gm. Ampules.

NEOARSPHENAMINE-D. R. L. (See New and Nonofficial Remedies, 1925, p. 49).

The following dosage form has been accepted:

Neoarsphenamine-D. R. L., 0.15 Gm. Ampules.

SCARLET FEVER STREPTOCOCCUS ANTITOXIN (See THE JOURNAL, May 2, 1925, p. 1338).

Lederle Antitoxin Laboratories, New York.

Scarlet Fever Streptococcus Antitoxin-Lederle (Refined and Concentrated).—It is prepared by immunizing horses by the subcutaneous injection of the toxic filtrate obtained by growing the scarlet fever streptococcus in broth; also by injecting cultures of the scarlet fever streptococcus. The serum is concentrated by a method similar to the Gibson-Banzhaf method. Each cubic centimeter neutralizes at least 50,000 skin test doses of scarlet fever toxin.

Marketed in packages of one syringe containing 1 Cc. (prophylactic dose); and in packages of one syringe containing 10 Cc. (therapeutic dose).

SAUBERMANN RADIUM EMANATION ACTIVATOR (See New and Nonofficial Remedies, 1925, p. 315).

The following apparatus has been accepted:

Saubermann Radium Emanation Activator, 100,000 Mache Units: An apparatus which imparts about 36 microcuries (100,000 Mache units) *to about 500 Cc. of water daily.*

Health Program for County.—The county and state health authorities should agree on a health program to be undertaken, the general guides being (*a*) the relative importance and the relative preventability of the disease or group of diseases; (*b*) the conjectural value of those health activities not directed specifically against particular diseases, and (*c*) the psychologic response of the people to the service.—Parran, Thomas, Jr.: *Pub. Health Rep.* **40**:987 (May 15) 1925.

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SATURDAY, NOVEMBER 7, 1925

A NEW CONCEPTION OF GLYCOGEN FORMATION

Nearly three quarters of a century has elapsed since Claude Bernard's discovery of glycogen as a component of the liver. This interesting finding was soon followed by the demonstration that the glucose-yielding carbohydrate is ordinarily present in a large variety of tissues. Glycogen occurs not only in the higher animals but also in the lowly forms, so that it was soon acclaimed as one of the fundamental components of cells. The principal feature of glycogen in the body is its ready conversion to glucose, the characteristic sugar of the blood. This was recognized at the outset of the study of the subject. Knowledge of the genesis of glycogen has been attained more gradually, until today there is general agreement that it can be formed not only from carbohydrates but also from proteins—and perhaps from fats. Bernard himself looked on glycogen as a product formed in a way analogous to the secretions. Succeeding physiologists, however, have promoted the idea that this carbohydrate is a storage product; hence it was often designated as "animal starch," in contrast with starch that is a deposited source of food in plants.

Markowitz [1] of the physiologic laboratory at the University of Toronto has offered the criticism that if glycogen were merely a storage material, it should be possible to exhaust it by starvation. As a rule this is not so; in fact, it may accumulate during starvation. If conditions are developed whereby the organism, notably the liver, actually becomes glycogen-free, it is seemingly impossible to maintain the indispensable content of sugar in the blood, and thereupon disaster ensues. Markowitz has pointed out that, in the light of the common conception of glycogen as a storage material in the body, the actual accumulation of the substance in the liver during starvation, sometimes to the extent of several per cent., is a paradox. The observation, he remarks, suggests that liver glycogen is an essential step in the transformation of fat or protein to carbohydrate. When this transformation cannot take place, as after phosphorus poisoning or liver extirpation, the blood sugar falls and the organism dies unless glucose is supplied to it. Glycogen thus cannot be compared directly with the fat depots of the well fed organism; for it seems to be an obligatory, and not an optional, step in the formation of blood sugar from the noncarbohydrate stores of the organism. In other words, glycogen may serve as an essential intermediate step in the metabolism of carbohydrate, so that the absolute quantity of glycogen in the organism is a balance between glyconeogenesis and glycogenolysis.

If these views are well established, glycogen should no longer be regarded as a "static" substance in the body but rather as a dynamic material which the organism is always consuming, and almost as quickly replacing. This newer conception of the important function of glycogen as an indispensable intermediate in sugar metabolism affords a rationale for the seemingly contradictory facts that insulin, on the one hand, facilitates the utilization or consumption of sugar, yet is a potent factor in the storage of glycogen. As glycogen is stored in the liver of depancreatized animals, following the administration of both carbohydrate and insulin, and since the respiratory quotient under the same conditions rises markedly (thereby indicating sugar combustion in the body) it is evident, to quote the words of Joslin,[2] that the beginning and end of carbohydrate metabolism is dependent on insulin.

FRESH FRUITS AND VEGETABLES: VITAMINS AND BACTERIA

The importance of fruits and vegetables in the dietary of man is attested by the instinctive food choices of many generations as well as by the teachings of the science of nutrition. It has long been easy to furnish a satisfactory explanation of the individual nutritive virtues of many of the more familiar components of the human regimen in terms of proteins, fats, carbohydrates or, perhaps, inorganic salts that they happen to furnish in special abundance. The fruits and green vegetables have not fitted so easily into the groups of "energy-yielding" or "tissue-building" nutrients. Consequently, only recently could more cogent reasons be offered for their use. It would be quite possible for a person to omit fruits and vegetables from his diet without running the risk of not getting enough starch, sugar and protein. On the other hand, fruits and vegetables have rather been regarded as essential to health because they may supply certain desirable substances not usually found in other food materials. There was a time when flavor and texture were their reputed advantages. More recently their content of inorganic substances and above all their supply of the various indispensable vitamins has given them unique importance.

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[1] Markowitz, J.: Glyconeogenesis, Am. J. Physiol. **74**: 22 (Sept.) 1925.

[2] Joslin, E. P.: The Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1923, p. 24.

Reviewing our knowledge of the subject, McCollum[1] points out that fruits appear from the results of chemical analysis to be closely comparable in their composition to the familiar vegetables such as the tubers and roots. They all contain much water and varying amounts of sugars, and are relatively insignificant as sources of protein or fat. They are much more attractive to the palate than are most of the vegetables. They enjoy the popular reputation of possessing mild laxative properties, and tend to increase elimination by virtue of their mild diuretic qualities, part of which are due to the extra water consumption and part to the action of certain salts of organic acids they contain. Fruit juices or the edible parts of fruits differ from the cereal grains, and resemble in an important respect the vegetables, which are morphologically tubers or roots. There is an excess of basic radicals, which renders their ash alkaline, whereas most seeds give an acid ash. Meats are also of acid character. The meat and bread portion of our diet, when oxidized in metabolism, leads to the formation of an excess of acid over base forming substances. It is now a well established fact that a certain alkali reserve in the blood is essential to maintain its capacity to carry carbon dioxid to the lungs for elimination, and that a common pathologic condition, acidosis, exists in which this reserve falls below normal. This forms sound reason, McCollum continues, why the addition of fruits and vegetables to the diet tends to the establishment of a proper acid-base equilibrium in the various fluids of the body. The fruits differ from the leafy vegetables in containing little calcium. They resemble the tubers and roots, as they do not tend to supplement the deficiencies of seed or meat products in this respect. Nearly a decade has elapsed since our entry into the World War. There is already a peculiar historical interest merely in reading the following "official" war-time advice of the United States Food Administration: Vegetables and fruits represent a different and happier phase of the food situation than that of most of the staples. They represent a great potential reserve of foods for home consumption. Not only does their presence in the diet add to health, but it releases other foods for shipment abroad.[2]

The food consumer of the present day is confronted with an apparent conflict of advice in his desire to partake freely of the fruits and vegetables. On the one hand, there are recurring admonitions of the unsuspected dangers that may lurk in fresh foods which are commonly eaten uncooked. Putrefactive bacteria and botulism, typhoid and paratyphoid germs are some of the more or less indefinite terrors to be recalled in this connection. In the East, the prevalence of infectious diseases has raised the presumption that the organisms causing them are often conveyed by the eating of fresh fruits and vegetables—a possibility emphasized by the widespread use of human excreta as fertilizer. It has even been asserted that this practice is likely to increase among market gardeners near the large cities in this country where the immigrant farmers tend to continue the agricultural customs of their native country. On the other hand, although safety might be secured by adequate sterilization of such foods through cookery, we have been warned that heat is destructive to the indispensable vitamins. The well known genesis of scurvy on a regimen of heated milk is commonly cited in justification of such claims.

In the midst of this quandary as to the wise procedure in diet, certain newly established facts are alike helpful and reassuring. The reports of the destructive effects of heat on vitamins as a class have been "grossly exaggerated." The lability seems to apply more particularly to vitamins A and C and to depend largely on the conditions of heating employed. When the possibility of oxidation is precluded, as in commercial canning rather than open-air heating, the loss of vitamins is greatly reduced, if not actually negligible. Vitamin B is notably resistant to heat at boiling temperature. Furthermore, the extensive investigations of Mills, Bartlett and Kessel[3] at the Peking Union Medical College, in China, have brought new evidence that normal uninjured fruits and vegetables do not contain living bacteria within their tissues. We fail to realize that nature has provided these foods in sterile packages for our use. Bacteria do not penetrate the unbroken skin of fruits and vegetables kept under market conditions. Finely divided particulate matter, corresponding in size to bacteria, protozoan cysts and helminth ova, does not penetrate the stem end of fresh vegetables to any appreciable extent. Bacteria pathogenic to man may gain entrance to fruits and vegetables through injured and decayed portions, where they may remain viable and spread to a limited extent. It is therefore advisable to remove such portions before attempting the sterilization of food in any way. However, harmful micro-organisms may persist on the surfaces of fruits and vegetables for many days, according to the Peking bacteriologists. Their investigation of methods of chemical disinfection of vegetable matter in the East, through chlorination, permanganate, alcohol or comparable means has been disappointing. Hence they admonish us that dipping fruits and vegetables foten seconds into boiling water is the only method thus far discovered that will uniformly kill all pathogenic bacteria, protozoan cysts and helminth eggs that might be found contaminating such food products and render them safe for human consumption in an uncooked condition. The traveler in the Orient, as well as the resident at home in the Occident, may now be comforted by the assurance that with proper sterilization or cookery his quota of fruits and vegetables may be made microbiotically safe—and that without undue deprivation of the vitamins.

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[1] McCollum, E. V.: The Newer Knowledge of Nutrition, Ed. 2, New York, the Macmillan Company, 1922, p. 141.

[2] Food and the War. United States Food Administration, Cambridge, Mass., Houghton Mifflin Company, 1918.

[3] Mills, R. G.; Bartlett, C. L., and Kessel, J. F.: The Penetratio of Fruits and Vegetables by Bacteria and Other Particulate Matter, an the Resistance of Bacteria, Protozoan Cysts and Helminth Ova t Common Disinfection Methods, Am. J. Hyg. 5: 559 (Sept.) 1925.

THE LIVER AND THE PANCREAS IN DIABETES

Mann and Magath[1] of the Mayo Foundation have *demonstrated cogently that the maintenance of the* normal level of sugar in the blood is absolutely dependent on the liver. The latter organ and its functioning are equally essential in the maintenance of a hyperglycemic blood sugar level, such as is observed in failure of the pancreatic activities on which the combustion of sugar in the blood seems to depend. It has been noted that the increase in blood sugar following pancreatectomy is dependent on the presence of the liver. Without an adequate amount of functioning liver tissue, the increase in blood sugar following removal of the pancreas does not occur. Thus it has been proved in another way that, whatever may be the process of carbohydrate metabolism, the liver has a vital part in that process. Distinction between the normal and the diabetic organism disappears when both liver and pancreas are removed from the body.

In commenting on these features of the metabolism of carbohydrates, Murlin[2] of the University of Rochester, N. Y., remarks that, if the liver must be present to produce the diabetic state on removal of the pancreas, we have at least a partnership instead of an individual agency to keep us normal. May it not well be, he asks, that both Minkowski and von Noorden were right, in a measure? The former set up the "failure of combustion" theory, the latter the "overproduction of sugar" theory. Banting gave us the hormone necessary to combustion, thus supporting Minkowski; but, Murlin adds, it is destroyed by too much sugar.

The last thesis cannot yet be regarded as completely demonstrated, though it is strongly supported by Murlin's studies. It has been established that insulin may be inactivated by reducing agents,[3] and perhaps reactivated by exposure to oxidizing agents. This suggested the possibility that the pancreatic hormone might be inactivated by reducing sugars, thus explaining their antidoting effects and conceivably throwing some light on the genesis of diabetes. Murlin's observations leave little doubt that in vitro, at least, an excess of glucose can render insulin impotent; it is quite likely that a similar reaction occurs in the organism itself; hence the antidotal effect of sugar against overdosage with the pancreatic hormone. Normal carbohydrate metabolism demands a proper balance between insulin and sugar. In securing this, more than one organ may be involved; and in failure to maintain the balance, the liver as well as the pancreas may at times be responsible. Speculation on the genesis of diabetes from this point of view may presently prove to be worth while.

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[1] Mann, F. C., and Magath, T. B.: Studies on the Physiology of the Liver, IV, The Effect of Total Removal of the Liver After Pancreatectomy on the Blood Sugar Level, Arch. Int. Med. **31**: 797 (June) 1923.

[2] Murlin, J. R.: Inactivation of Insulin by Glucose with a Comment on the Genesis of Diabetes, Science **62**: 332 (Oct. 9) 1925.

[3] Allen, R. S., and Murlin, J. R.: Inactivation and Reactivation of Insulin, Proc. Soc. Exper. Biol. & Med. **22**: 492 (May) 1925.

AIR CURRENTS IN VENTILATION

The oppressiveness of an unventilated room is something that is recognized by our sensations. The effects may vary from slight discomfort to actual malaise, all of which proper ventilation aims to avert. There was a time when hygienists were greatly concerned about the chemical composition of the air in relation to health and comfort, when the "badness" of air in ordinary buildings was sought in the form of excessive amounts of carbon dioxid or more poisonous organic respiratory products. One even heard about the fatigue-producing toxins of expired air. Scientific investigation has failed to support such explanations. In considering ventilation, it attaches importance not to the chemical composition of the air but rather to physical properties, temperature, humidity and movements of the surrounding atmosphere. Successful ventilation, a well known British report states,[1] depends on the prevention of stagnation of body heat, on the one hand, and of uncomfortable chilling of the body, on the other.

The fresh and comfortable sensation produced in well ventilated rooms, in contrast with an oppressive environment, is now believed to be due in no small degree to air movement. Success in effecting a feeling of well being through ventilation consists apparently in preventing the discomfort of distinct drafts without permitting actual stagnation of the air. Baetjer[2] has recently pointed out that the movements which give comfort under ordinary room conditions seem to lie somewhere near the threshold of perceptibility. The play of a current of air on the skin may set up a number of changes, any one of which or a combination of all of which may react on our feelings of comfort. Baetjer suggests further that the current of air may stimulate directly the cutaneous sensory fibers (pressure, temperature), and the sensations thus aroused may contribute immediately to our feelings of comfort or discomfort, or they may act in an indirect way, for example, by a reflex effect on metabolism or on the vasomotor apparatus. The skin surface may undergo a vasoconstriction or a vasodilatation, locally or generally, with a resulting change in the cutaneous temperature sensations. Or the current of air may affect us by its physical effect on the skin. Heat dissipation may be influenced by changes in convection and evaporation, according to the condition of the air in regard to temperature and moisture.

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[1] Hill, L.: The Science of Ventilation and Open Air Treatment, Part II, Medical Research Council, Privy Council, Special Report Series, No. 52, London, His Majesty's Stationery Office, 1920.

[2] *Baetjer, Anna M.: Threshold Air Currents in Ventilation*, Am. J. Hyg. **4**: 650 (Nov.) 1924.

The actual experiments of Baetjer in the laboratory of physiologic hygiene at Johns Hopkins University indicate that currents of air in the neighborhood of the threshold of perceptibility contribute to our comfort, in all probability, by acting on the sensory nerves of the skin, directly or indirectly, and arousing cutaneous sensations of an agreeable kind. Currents as slight as 0.15 meter a second give a perceptible stimulus to the sensory nerves of the cheek. The value of the threshold velocity varies with the temperature, but is independent of the humidity of the current air. When current air temperature equals normal room air temperature, the threshold velocity varies from 0.2 to 0.3 meter a second. The fact that the threshold value for velocity, as determined by experiment, depends on the temperature of the current of air would lead to the belief that the temperature nerves are mainly concerned. The higher the temperature, the greater must be the velocity of the current to be perceived. Therefore, according to Baetjer, in ventilating a room, the amount of air movement should be controlled by the temperature of the moving air. As shown by her practical experiments, a room at ordinary room temperatures in which the currents are below the threshold limit produces an uncomfortable feeling of closeness, while one with currents much above the threshold values becomes unpleasant on account of the drafts. Baetjer also suggests that since an air current of threshold value is perceptible when it first strikes the skin, but ceases to be perceptible when continued for a few minutes, it is possible that air currents, rising above and falling below the threshold velocity and varying in temperature, produce a series of mild cutaneous stimulations of agreeable character. Possibly this factor may serve to explain in part the preference often expressed for window ventilation under favorable conditions over mechanical systems. In any event, the lesson from the latest experiments is that, in the case of crowded or overheated rooms, a system of ventilation which delivers the circulating air at a somewhat lower temperature than that of the room and at or slightly above threshold velocities should give the best result. Speaking practically, the air movement in a well ventilated room should not fall below the threshold value for the skin of the cheek.

Current Comment

THE DAILY INTAKE OF IODIN

The interrelation between iodin and the thyroid glands has become so familiar to both the physician and the intelligent layman that its significance no longer calls for explanation or emphasis. So far as the genesis of those thyroid conditions that are remediable by administration of iodin is concerned, fundamental facts have largely been wanting. There has been a well founded conjecture that somehow in those regions where endemic goiter is most common the availability of iodin in the air, the potable waters or the food supply must be restricted in comparison with what is true in the areas of comparative immunity from goiter among both man and animals. The quantities of the element that are involved in these differences are extremely small—amounts less than "parts per million" of the food and drink. Such minute proportions call for great refinement of analytic methods. It is the merit of McClendon of the University of Minnesota to have furnished striking illustrations of the parallelism between the incidence of endemic goiter and the iodin content of foods derived from the regions especially concerned. A similar service has since been performed by von Fellenberg[1] of Bern, in Switzerland. In places where thyroid disturbances are notably prominent, the distribution of iodin in air, water and animal foods in particular was found far less abundant than in other places known to be essentially free from endemic goiter. The differences were further accentuated by the contrasting iodin content of the excreta of persons in the localities compared. Relative richness in iodin always accompanied the more normal conditions. What this means in a quantitative way is differences of the order of magnitude of 0.05 mg. of potassium iodid or 0.038 mg. of iodin daily in the intake. Contemplation of such minute amounts—a few hundredths of a milligram—brings us to better realization of the large importance of "little things" in nutrition.

THE SIGNIFICANCE OF UROBILINURIA

The occurrence of urobilin or its immediate precursor in the urine of certain patients has long been recognized. The rational clinical interpretation of the significance of urobilinuria has awaited the more precise determination of the factors that are responsible for its genesis, transport and excretion. The long existing uncertainty as to where urobilin is formed in the body seems at length to be dispelled. The story of its behavior has been developed in a satisfactory way through the researches, among others, of McMaster and his co-workers[2] at the Rockefeller Institute of Medical Research. Thus, under normal conditions, in the dog at least, urobilin is formed only within the intestinal tract. Drainage of the entire bile quantity under sterile conditions, or retention of it by common duct occlusion, results in the prompt disappearance of the pigment from the excreta and bile. The animal becomes in fact urobilin-free. But whenever bilirubin enters the intestine urobilin is rapidly formed, part escaping with the feces while another part is absorbed from the bowel, either as such or in the form of related pigments. This secondary resorption and resecretion play an important part in the normal fate of urobilin. The latest investigations of Elman and McMaster[3] demonstrate that animals rendered urobilin-free by collection of all the bile without contact with the intestine remain urobilin-free even after severe hepatic injury. This negatives the assumption that pathologically altered liver cells can manufacture urobilin. The latter is unquestionably a product of bacterial action in the intestine or biliary passages. It is not the product of a damaged hepatic tissue, as urobilinuria is never found after liver injury except when bile pigment has been present in the intestine. When, however, the alimentary formation of urobilin becomes possible, urobilinuria is a prominent symptom of liver injury; thus it is the expression of the inability of the liver cells to remove from the circulation the urobilin brought by the portal stream, with the result that the pigment passess on to the kidneys and the urine. Indeed, urobilinuria occurs with a far less degree of liver injury than does bilirubinuria. The diagnostic possibilities revealed by such facts are important.

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[1] Von Fellenberg, T.: Untersuchungen über das Vorkommen von Jod in der Natur, VI, Ueber den Zusammenhang zwischen der Häufigkeit des Auftretens von Kropf und dem Jodgehalt der Umwelt, Biochem. Ztschr. **152**: 141, 1924.

[2] McMaster, P. D., and Elman, R.: J. Exper. Med. **41**: 503, 513 (April), 719 (June) 1925.

Association News

THE DALLAS SESSION

Papers for Section on Orthopedic Surgery

Any Fellow of the American Medical Association who wishes to present a paper before the Section on Orthopedic Surgery at the annual meeting is requested to communicate with the secretary of the section as soon as possible.

All requests for place on the program must be accompanied by an abstract of the paper. Requests for place on the program are acted on by the Executive Committee.

ARCHER O'REILLY,
3534 Washington Boulevard, St. Louis.
Secretary, Section on Orthopedic Surgery.

Conference on Negro Health Work.—A conference was held at the office of the Surgeon General, U. S. Public Health Service, October 21, to further health work among negroes. Among the delegates to the conference were Dr. Helen A. Moore, American Child Health Association; Franklin O. Nichols, National Health Council and the American Social Hygiene Association; William B. Matthews, National Tuberculosis Association, and R. Maurice Moss of the National Urban League. "More National Negro Health Work" was adopted as a new slogan. Plans to revise the literature used in this work were considered and a program outlined for National Negro Health Week during 1926. The National Tuberculosis Association, American Red Cross and the American Child Health Association have agreed to furnish special literature. The conference adjourned to meet at Tuskegee Institute, Jan. 30, 1926, when this literature will be ready for distribution. Emphasis was made on the necessity for better understanding on the part of the public of the negro health problem.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Bust of General Gorgas.—The bronze bust of the late Surg. Gen. William C. Gorgas, to be presented to the state by the Medical Association of the State of Alabama, has been received at the state health department from New York.

CALIFORNIA

Officer's Commission Stolen.—The secretary of the California State Board of Medical Examiners writes that the commission of Dr. Harlen A. Todd, Visalia, given him as a medical officer in the U. S. Army during the World War, was stolen during a recent burglary.

Optometrists and the Title "Dr."—According to press reports, Attorney General U. S. Webb has advised the state board of optometry that California optometrists cannot legally call themselves "Doctors" or "Drs." in prefixes, and can only add the affixes of "Opt. D." or "O.D." when they are graduates of an accredited school of optometry; also that no California optometrist may hold out to his prospective patients that he possesses "special knowledge" of optometry as defined in the act, which defines optometry as a mechanical and not a medical science.

Society News.—The seventy-third semiannual meeting of the Southern California Medical Association will be held, November 6-7, at the Ebell Club, Los Angeles, under the presidency of Dr. Rexwald Brown, Santa Barbara. Among the speakers will be Dr. Robert E. Ramsay, Pasadena, "Myelocytomatosis Following Subcutaneous Administration of Whole Blood in a Child with Severe Leukopenia"; Dr. T. Homer Coffen, Portland, Ore., "The Failing Heart"; Dr. Samuel H. Watson, Tucson, Ariz., "Heliotherapy in Pulmonary Tuberculosis," and at 8:15 p. m., Saturday, Sir John Adams, emeritus professor of education, University of London, will speak on "Sherlock Holmes—A Study in Observation."

CONNECTICUT

Thyroid Survey.—The U. S. Public Health Service is making a thyroid survey in Connecticut at the request of the state department of health. It will cover several cities or towns in each county in the state and represent in each the examination of groups of from 500 to 1,000 school children. The primary purpose is to ascertain the percentage of thyroid enlargement and incidentally to study its relation, if any, to focal infection.

Psychiatry at Yale.—Dr. Milton C. Winternitz, dean, Yale University School of Medicine, New Haven, announced, October 31, plans for the development of work in psychiatry and mental hygiene in that school. He said, according to the New York *Times*, that the faculty of the school of medicine had placed the creation of a department of psychiatry in the foreground of its problem of development, and that Yale hopes to train physicians who "are familiar with the problem of human personality" rather than specialists. With the appointment of Dr. Arthur H. Ruggles as lecturer in psychiatry and consultant in mental hygiene to the university department of health, Yale initiates a program for the study and prevention of abnormal mental reactions in individuals. "A sane approach to the problem among the students," he said, "promises to meet with as much success as it has in general community life." The General Education Board and a Yale graduate have each provided $15,000 a year to initiate this program.

DISTRICT OF COLUMBIA

Society News.—Dr. Everett M. Ellison was elected president of the Wapiya at the annual meeting, October 27; Dr. Stewart B. Muncaster, vice president, and Dr. Fred Y. Williamson, secretary-treasurer. Wapiya is an organization of more than 100 physicians who are members by virtue of their membership in the University Club. Meetings are held weekly, and twice a month they are devoted to some subject other than medical. The official organ of the Wapiya is the

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[3] Elman, R., and McMaster, P. D.: Studies on Urobilin Physiology and Pathology, IV, Urobilin and the Damaged Liver, J. Exper. Med. 42:99 (July) 1925.

Tom Tom; the editors are Drs. John A. Foote and Ralph S. Pendexter.

Report of Public Health Committee.—A report made by the Public Health Committee of the District Board of Trade shows that during 1924 there were reported to the health department 6,553 deaths (4,140 white and 2,413 colored) making a death rate of 13.46 per thousand. The deaths from typhoid fever were eighteen white and one colored, a rate of 3 per hundred thousand; from scarlet fever, seven white and one colored, a rate of 1.6 per hundred thousand; from whooping cough, four white and nine colored, a rate of 2.6 per hundred thousand; from diphtheria, thirty, twenty-six being white and four colored, a rate of 6.2 per hundred thousand; from influenza, twenty white and thirteen colored, a rate of 6.8 per hundred thousand; from pulmonary tuberculosis, 204 white and 270 colored, giving a death rate of 97.3 per hundred thousand; 533 from cancer, 403 white and 130 colored, a rate of 109 per hundred thousand. The number of suicides were seventy-seven white and seven colored, a rate of 17.3 per hundred thousand. The number of homicides was nineteen white and thirty-five colored, a rate of 11.1 per hundred thousand. The Public Health Committee again urgently recommended an increase in the number of physicians, dentists, dental clinics and nurses for the public schools. It recommended, among other things, that twelve additional nurses be provided, four additional dental clinics be established and eight additional dentists and twelve dental nurses or assistants be provided.

FLORIDA

Personal.—Dr. James R. Bean has returned to the laboratories of the state board of health as senior bacteriologist after an absence of nearly nine years.

Society News.—Twenty-five members of the Orange County Medical Society, comprising Orange, Osceola and Seminole counties, each recently gave twenty-four hours to the instruction of Boy Scouts at the encampment of the Central Florida Council at Plymouth.

HAWAII

Pan-Pacific Medical Conference.—At the recent annual conference of the Medical Association of Hawaii, a resolution was passed endorsing the first Pan-Pacific Medical Conference, which will convene in Honolulu in 1928 just prior to the Pan-Pacific Women's Conference. The following committee was named: Dr. Nils P. Larsen, chairman; Dr. Goichi Asami, Dr. Harry H. Blodgett, Dr. Wah K. Chang, Dr. Clarence E. Fronk, Dr. Roger J. Mermod, Dr. Iga Mori, Dr. Vasco E. M. Osorio, Dr. Carl F. Reppun, Dr. Archibald N. Sinclair, Dr. C. B. Wood and Dr. Yon C. Yang.

IDAHO

Increase in Death Rate.—The death rate for Idaho for 1924, according to the Department of Commerce, was 787 per hundred thousand of population, as compared with 708 in 1923. The increase was due largely to increases in the death rates from diseases of the heart, cancer, tuberculosis, measles, syphilis, intestinal diseases and accidental causes.

ILLINOIS

Personal.—Dr. John P. Denby, Carlinville, has been elected president of the Illinois Tuberculosis Association.——Dr. Ira W. Johnson, Bridgeport, has been appointed county physician of Lawrence County.——Dr. Edward G. Ahrens, formerly with the Minnesota State Tuberculosis Sanatorium at Ah-gwah-ching, has been appointed medical director of the Macon County Tuberculosis Sanatorium, Decatur.

Chicago

Children's Home.—The Illinois Children's Home and Aid Society, 308 North Michigan Avenue, maintains receiving institutions at Duquoin and Evanston for a laboratory study of children prior to placement, and a training school at Potomac for vocational training. These institutions have a capacity of twenty-five, forty-five and thirty, respectively. The society cares for more than 1,650 children, over 1,000 of whom are in private families which receive no compensation, and over 300 of which are with private families where board is paid by the society, parents or friends; the other children are cared for temporarily by cooperative Chicago agencies.

Personal.—A dinner will be given in honor of Dr. Robert H. Babcock by his medical friends at the Drake Hotel, November 10.——Edward E. Slosson, Ph.D., editor of *Science Service,* will lecture, November 9, in Orchestra Hall under the auspices of the University of Chicago on "Chemistry and Human Welfare."——Dr. Agnes Beulah Cushman has been elected secretary of the Chicago Council of Medical Women. Dr. Mary M. S. Johnstone, of the Tuberculosis Division of the Veterans' Bureau, has been transferred temporarily to St. Louis.——Dr. Patrick J. H. Farrell was elected surgeon general of the Military Order of the World War, at the annual meeting in New York, September 26.

New Plans for Medical Arts Club.—At a meeting of the board of directors of the Medical Arts Club, held October 30, it was unanimously voted to change the name of the club to the Medical and Dental Arts Club of Chicago. C. N. Johnson, D.D.S., retiring president of the American Dental Association, was elected a member of the board of directors. Mr. John A. King was elected as business manager in place of Mr. David MacLean. The report of the Chicago Trust Company, trustee, showed that there were in the hands of the trustee $214,173.08 as a nucleus for a building fund. Plans for a building include an assembly hall seating from 700 to 800 for the regular meetings of the Chicago Medical and Chicago Dental societies and for other professional meetings and conventions, rooms for the various local special societies, headquarters for the Chicago Medical and Chicago Dental societies, the Illinois State Medical and Dental societies, the American Dental Association and others; club rooms for the convenience of the members; bedrooms for resident and out of town members and guests; the remainder of the building, including 75 per cent. of the total available space, to be rented as stores, offices and salesrooms to firms doing business with physicians and dentists.

Society News.—Dr. Anton J. Carlson addressed the South Chicago Branch of the Chicago Medical Society, October 27, on "Recent Advances in the Physiology of the Alimentary Canal."——States Attorney Robert E. Crowe addressed the Englewood Branch of the Chicago Medical Society, November 3, on "The Doctor and the Law."——There was a reception at the Chicago Athletic Club, November 4, in honor of Sir William Arbuthnot Lane and Mr. Philip Franklin, London, England, and a dinner given by the officers of the Chicago Medical Society previous to the general meeting in the Marshall Field Annex. The subject of the address of Sir W. Arbuthnot Lane was "Present Treatment of Fractures," and that of Mr. Philip Franklin, "Newer Developments in Laryngology."——Dr. William Allen Pusey will open the discussion from the dermatologic standpoint, and Dr. Maurice Lewison from the tuberculosis standpoint, following the joint paper on "The Noticeable Parallelism and Similarity Between Leprosy and Tuberculosis" to be presented before the Chicago Medical Society by Dr. Oswald E. Denney, U. S. Public Health Service, and Dr. John Ritter, Chicago, November 18.——Dr. Lewis E. Daniels, Detroit, will address the Chicago Roentgen Ray Society, November 10, at the Virginia Hotel, on "Roentgen Ray in Pathologic Pregnancies and Labor." Dr. Joseph B. DeLee will open the discussion.——The next meeting of the Chicago Laryngological and Otological Society will be November 19 at the Hotel Sherman.——Sir W. Arbuthnot Lane, London, addressed the Chicago Surgical Society at its regular meeting, November 6, at the University Club, on "Chronic Intestinal Stasis," and Dr. Donald C. Balfour, Rochester, Minn., on "Disabilities Following Gastro-Enterostomy." The regular clinical meeting of the society began at 9 o'clock at Michael Reese Hospital.

INDIANA

Society News.—Dr. William Allen Pusey, Chicago, past president of the American Medical Association, will conduct a clinic for the Tippecanoe County Medical Society, St. Elizabeth's Hospital, LaFayette, November 12, and, following a banquet at the LaFayette Club at 6 p. m., will give an address on syphilis. Members are invited to bring cases of skin disease of any kind whatever to the clinic.——Dr. Kellogg Speed, Chicago, addressed the St. Joe County Medical Society, South Bend, October 25, on "Fractures."

IOWA

Society News.—Dr. Merrill M. Myers, Des Moines, conducted a clinic on heart disease before the Jackson County Medical Society, Maquoketa, and addressed the society at the evening session on heart disease. The clinic was held under the auspices of the Iowa Tuberculosis Association.

Superintendent Appointed.—It is reported that Dr. Jesse L. McElroy, director of St. Mark's Hospital, New York, has been appointed head of the State University of Iowa Hospital, Iowa City, to succeed Dr. Bert W. Caldwell, resigned. Dr. McElroy was also formerly superintendent of the Ancker Hospital, St. Paul, Minn.

KENTUCKY

Infantile Paralysis Epidemic.—Following a conference of the city health officer of Louisville with physicians, an order was issued closing the public schools, October 22, on account of an outbreak of infantile paralysis in that city. There had then been, it is reported, nineteen cases and four deaths. There were six cases of infantile paralysis in Owensboro also, October 22, with two deaths.

Superintendent Appointed.—Dr. Paul A. Turner, Seattle, formerly state health officer of Washington, has been appointed superintendent of the Kentucky State Tuberculosis Sanatorium at Louisville, to succeed the late Dr. Samuel W. Bates. Dr. Turner, who has already taken up his new position, was also formerly city health officer of Seattle and superintendent of the Seattle Tuberculosis Sanatorium.

LOUISIANA

Castellani Accepts Professorship at Tulane.—Dr. Aldo Castellani, now professor in the London School of Tropical Medicine, has accepted an appointment as head of the department of tropical medicine at Tulane University of Louisiana School of Medicine, New Orleans, and will arrive in that city in December. The reorganized department of tropical medicine will have three assistant professors and a staff of technicians and will provide training for undergraduate and graduate students; it will conduct research on the dietary problems of tropical climes, on disturbances arising from fungi, on the parasitic diseases, and on the results of exposure to tropical sunlight. Professor Castellani was born in Florence, Italy, in 1875. He graduated from the University of Florence, did postgraduate work at the University of Bonn, and was a member of the Royal Society's commission in Uganda, 1902-1905, and director of clinique for Tropical Diseases and physician to Colombo General Hospital, 1903-1915; he discovered the cause of African sleeping sickness (trypanosomiasis) in 1902 and the cause of yaws (frambesia) in 1905. He is the co-author of a standard textbook on tropical diseases and the author of many contributions to scientific journals (The Journal, May 2, p. 1363).

MARYLAND

Personal.—Maynard M. Metcalfe, Ph.D., Johns Hopkins University School of Hygiene and Public Health, Baltimore, sailed for Rio de Janeiro, September 26, as a representative of the Smithsonian Institute, Washington, D. C., to study certain species of the one-cell parasite *Opalina*, at Montevideo.

Cancer Meeting.—The Frederick County Medical Society and the Maryland Association for the Prevention of Cancer held a joint meeting to discuss cancer at Hood College, Frederick, October 2. Dr. George H. Riggs, president, Frederick County Medical Society, presided, and Drs. Joseph C. Bloodgood, Lewellys F. Barker and Thomas S. Cullen, all of the Johns Hopkins Hospital, Baltimore, were the speakers.

The Grenfell Mission.—Drs. Ralph F. Bowers and Alvin F. Coburn have returned to Baltimore from Labrador, where they were associated with the Grenfell mission during the summer. They cruised along the coast of Labrador on the hospital ship caring for patients and assisting in operations, visited three of the hospitals and nursing stations and instructed fishermen in first aid. They were delighted with the medical facilities in that country as provided by the Grenfell Mission.

Wilmer Institute Opens.—The Wilmer Institute of Johns Hopkins Hospital, Baltimore (for the study and treatment of diseases of the eye), was officially opened, October 29, under the directorship of Dr. William Holland Wilmer, formerly of Washington, D. C. The first unit of the new institute (forty beds) has been established in a wing of the hospital formerly part of the Nurses' Home, which has been renovated and especially fitted up. The next unit will be equipped with research laboratories.

Medal Awarded to Dr. Welch.—The first W. W. Gerhard gold medal offered by the Pathological Society of Philadelphia has been awarded to Dr. William H. Welch, director, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, and will be presented, November 12, when Dr. Welch will lecture before the society. The award was instituted by the Pathological Society of Philadelphia in collaboration with Dr. Arthur H. Gerhard in memory of William Wood Gerhard (1809-1872), who first differentiated typhoid fever from typhus.

MASSACHUSETTS

Personal.—Dr. Richard P. Strong, professor of tropical medicine of the Medical School of Harvard University, Boston, addressed the Medical Society of the State of Pennsylvania at Harrisburg, October 7, on "Spirochetal Infections of Man."——Dr. Guy C. Randall has been appointed state psychiatrist for Essex County to succeed the late Dr. Nelson G. Trueman.

Dr. Bigelow Appointed Commissioner of Health.—Governor Fuller appointed Dr. George H. Bigelow as state commissioner of public health, October 21, to succeed the late Dr. Eugene R. Kelley. Dr. Bigelow graduated from Harvard Medical School, was an intern at Massachusetts General Hospital, Boston, was an officer in the medical corps during the World War, was formerly director of the Cornell University Medical College clinic, New York, and since 1924 has been deputy commissioner of health of Massachusetts and director of the division of communicable diseases.

Appointments at Harvard School of Public Health.—According to the *Boston Medical and Surgical Journal*, Drs. William E. Deeks, Carlos P. Chagas and Alexander H. Rice have been appointed lecturers in tropical medicine at the Harvard School of Public Health; Dr. Albert A. Hornor, assistant in tropical medicine; R. A. Atwater, instructor in epidemiology; L. R. Cleveland, assistant professor of protozoology; Drs. Noel G. Monroe, Halstead G. Murray and Dwight L. Sisco, assistants in industrial medicine; Dr. Francis B. Grinnell, instructor in bacteriology; Dr. Fred W. Morse, Jr., assistant in bacteriology and immunology and John L. Lewis, assistant in vital statistics.

MICHIGAN

Society News.—Dr. Budd C. Corbus, Chicago, addressed the Kent County Medical Society, Grand Rapids, October 14, on "Medical and Surgical Diathermy, with Special Reference to the Treatment of Cancer."——Dr. Henry A. Christian, Hersey professor of theory and practice of physic, Harvard University Medical School, Boston, addressed the Wayne County Medical Society, Detroit, November 2, on "Achlorhydria Family Tree of Diseases."

Sterilization Law Upheld with Exception.—The supreme court of Michigan has decided that the law authorizing the sterilization of mentally defective persons was a valid exercise of police power within the limits of the constitution except as to the second division of Section 7, which the court held unconstitutional as class legislation. This part of the law referred to only those of the feebleminded class who were unable to support any children they might have and whose children probably would become public charges.

Conference of Health Officers.—At the fifth annual conference of health officers and public health nurses, Lansing, November 18-20, Dr. George F. Dick, Chicago, will speak on "Scarlet Fever," and Dr. Frederick Sears, Syracuse, N. Y., on diphtheria prevention. Among the other speakers will be Dr. Albert J. Chesley, commissioner of health of Minnesota; Dr. George T. Palmer, New York; Dr. Guy L. Kiefer, Detroit; Dr. Chalmers J. Lyons, D.D.Sc., Ann Arbor; Henry Vaughan, D.P.H., commissioner of health of Detroit, and Reuben L. Kahn, D.Sc., Lansing. Clarence C. Little, president of the University of Michigan, will address the public evening session on Wednesday.

MINNESOTA

Hospital News.—St. Andrew's Hospital, Minneapolis, is conducting a drive for $200,000 for a 100-bed extension.——The Cancer Institute and the Todd Memorial Hospital of the University of Minnesota were opened early in October, bringing the total capacity of the university hospitals to 300 beds. The Todd Memorial Hospital is for eye, ear, nose and throat patients.

Personal.—Dr. William V. Lindsay, city health officer of Winona, has been elected president of the Winona County Public Health Association.——John E. Anderson, Ph.D., assistant professor of psychology, formerly of Yale University, has taken up his work as director of the Institute of

Child Welfare of the University of Minnesota, Minneapolis, which was recently established under a grant of $250,000 from the Laura Spelman Rockefeller Memorial.——Dr. Henry Longstreet Taylor, St. Paul, president of the Minnesota Public Health Association, has been appointed president of the newly organized Minnesota Trudeau Society.

MISSISSIPPI

Hospital News.—The nurses' home at the South Mississippi Charity Hospital, Laurel, valued at about $75,000, was destroyed by fire, October 11; the occupants escaped injury.

MISSOURI

Hospital News.—Oak Manor, a new member in the group of Bethesda hospitals in St. Louis, was formally opened last month; the institution was made possible by the bequest of the late Mrs. Elizabeth Dilworth, who directed in her will that Oak Manor, her residence, and surrounding grounds be turned over to the Bethesda Corporation. Mrs. Dilworth left also a $350,000 estate which, after the death of her relatives, will revert to the Bethesda hospitals.

Joint Gynecologic Meeting.—The Chicago Gynecological Society was the guest of the St. Louis Gynecological Society, October 10. The members in attendance were entertained at breakfast at the University Club, and at clinics at the Washington University Medical School and at St. Mary's Hospital by the gynecologic and obstetrical department of St. Louis University. Following a dinner at the University Club papers were presented by Drs. Carey Culbertson, H. F. Lewis and George W. Reis, Chicago.

NEW MEXICO

Illegal Practitioner Fined.—George Calle, Albuquerque, was recently sentenced to thirty days in jail and to pay a $30 fine in police court for practicing medicine without a license, it is reported. The witness testified that she paid Calle $10 for a prescription.

State Board Election.—At a meeting of the state board of medical examiners, Santa Fe, October 13, Dr. Harry T. Watson, Gallup, was elected president for the next two years; Dr. William R. Lovelace, Albuquerque, vice president, and Dr. William T. Joyner, Roswell, secretary-treasurer.

NEW YORK CITY

Bequest to Fifth Avenue Hospital.—The will of the late Thomas F. Manville, head of Johns-Manville, Inc., which was probated, October 28, provides for a bequest of $1,000,000 to the Fifth Avenue Hospital of the City of New York, to be used to pay off any mortgage, encumbrance or lien on the hospital property, and the balance to be invested in such securties as the board of trustees of the hospital may decide. The fund is to be known as the Thomas F. Manville Endowment.

Anniversary Discourse.—George E. Vincent, Ph.D., president, Rockefeller Foundation, will deliver the seventy-ninth Anniversary Discourse at the New York Academy of Medicine, November 19, 8:30 p. m., on "The Doctor and the Changing Order." The Anniversary Discourse has been an annual occasion in November at the academy since its foundation in 1847. Among the former orators were Dr. Edward E. Janeway, Dr. William H. Welch, Dr. Hermann M. Biggs, Henry S. Pritchett, Chauncey M. Depew, George W. Wickersham, Mr. John H. Finley and Hon. George McAneny.

Personal.—Dr. Valeria H. Parker was elected president of the National Council of Women, October 31. The council represents forty national women's clubs and societies.——Dr. Samuel A. Brown, president of the New York Academy of Medicine, laid the cornerstone of the new Academy Building, October 30, and Dr. George D. Stewart, professor of surgery, University and Bellevue Hospital Medical College, was the principal speaker at the ceremonies.——George A. Soper, Ph.D., managing director for the American Society for the Control of Cancer, has returned to this city after a three months' investigation of cancer control in Europe.——Dr. Thomas M. Brennan recently was nominated a member of the board by the trustees of the Brooklyn Juvenile Protective Association.——Dr. Pierre Janet, professor of psychopathology, College de France, Paris, recently lectured at Columbia University and at Princeton, N. J.

Tuberculosis Conference.—The New York Tuberculosis and Health Conference, to be held November 19-20 at the Hotel Biltmore and the Academy of Medicine, is considered by the Committee on Tuberculosis and Public Health of the State Charities Aid Association the most important of its kind since the Albany conference of 1910, when President Taft, Governor Hughes and the Hon. Joseph H. Choate were among the speakers. At the coming conference, some of the speakers will be Dr. William H. Welch, director, School of Hygiene and Public Health, Johns Hopkins University, Baltimore; Dr. Theobald Smith, president of the National Tuberculosis Association; Dr. Livingston Farrand, president of Cornell University; Dr. Allen K. Krause, Johns Hopkins University Medical Department; Dr. Charles J. Hatfield of the Henry Phipps Institute, Philadelphia; Dr. Lawrason Brown of the Trudeau Sanatorium, Saranac Lake; Dr. Edward W. Archibald, McGill University Faculty of Medicine, Montreal; Dr. Frankwood E. Williams of the National Committee for Mental Hygiene; Dr. Sanger Brown of the New York State Commission for Mental Defectives; Dr. Frank J. Monaghan, New York City Commissioner of Health; Dr. Matthias Nicoll, Jr., New York State Commissioner of Health, and Surg. Gen. Hugh S. Cumming, U. S. Public Health Service (The Journal, October 10, p. 1144).

Society News.—The New York County Medical Society conducted a symposium on industrial surgery, October 26, at the New York Academy of Medicine. Dr. Oliver J. Fay, Des Moines, Iowa, discussed "The Evolution of Functional Nervous Disorders in Industrial Surgery"; Dr. Arial W. George, Boston, "Industrial Spine," and Dr. Harry E. Stewart, New Haven, "Physiotherapy in Industrial Injuries."——Dr. Samuel J. Kopetzky, president of the Medical Society of the County of New York, addressed the New York Pharmaceutical conference at the Hotel Pennsylvania, October 26, on "What the Physicians Require of the Pharmacist."——Dr. William H. Park will deliver the first Hermann M. Biggs Memorial lecture, given under the joint auspices of the Medical Society of the County of New York and the New York Tuberculosis and Health Association, at the New York Academy of Medicine, November 19, on "Hygienic and Preventive Measures Against Tuberculosis."——At a meeting of the New York Academy of Medicine, November 5, arranged in cooperation with the section on otology, Dr. Max A. Goldstein, St. Louis, gave a practical demonstration of modern pedagogic methods in the training of the deaf child by teachers and pupils of the Central Institute for the Deaf of St. Louis.

NORTH CAROLINA

Reduced Fares for Cripples.—The railways have arranged to give crippled patients attending the state orthopedic clinics, to be held from time to time in various counties throughout the state by leading orthopedic surgeons, the benefit of reduced railway fares.

Herbalist Sued.—J. H. Nanzetta, self-styled Indian herb doctor, who has been located in Charlotte, is reported to have been sued for $30,000 by one of his victims. It seems that one J. B. Groome of Charlotte, who claims to have been suffering from "weeping eczema," read one of Nanzetta's advertisements and went to the "herb doctor" for diagnosis and treatment. He claims that his condition was greatly aggravated, and that his eyes and other parts of his body "suffered great injury" as a result of Nanzetta's treatment.

Society News.—The annual meeting of the Ninth District Medical Society was held in Lexington under the presidency of Dr. Chalmers M. Van Poole, Salisbury, October 29. Among the speakers were Dr. William deB. MacNider, Chapel Hill, president of the state medical society, whose subject was "Nephritis"; Dr. Frank H. Richardson, Brooklyn, "Malnutrition in Children"; Dr. Verling K. Hart, Statesville, "Mastoiditis," and Dr. D. L. Smith, Spartansburg, S. C., "Physical Examination of the Child." A dinner was served, with Dr. James E. Hobgood, president, Davidson County Medical Society, acting as toastmaster.

Duke University Building Fund.—Our correspondent writes that the probating of the will of the late James B. Duke shows an addition to the endowment of Duke University, Durham, which brings the total of Mr. Duke's contributions to the institution to $40,000,000, and that of the additional sum given, $10,000,000 is for the construction and endowment of the medical school and hospital of Duke University. The will directs the immediate expenditure of $4,000,000 in constructing the medical college and hospital, while the remainder, $6,000,000, is to be for endowment. The university building fund given by Mr. Duke in 1924 ($6,000,000) was increased at the university commencement last year by $2,000,000, and more recently by $7,000,000, making a complete building fund available for immediate construction for the university proper of $15,000,000. The $4,000,000 for the buildings of the medical school and hospital gives all the departments of Duke University $19,000,000 for immediate construction work. North Carolina has not heretofore had the facilities to complete the medical course leading to the degree of M.D.

OHIO

Personal.—Dr. Archibald I. Carson has been elected president of the Cincinnati Board of Health to succeed the late Dr. Edward W. Walker; Dr. Mifflin B. Brady has been elected vice president to succeed Dr. Carson.——Dr. William S. Reed, Stockton, has been reappointed county physician.——Dr. Gaius E. Harmon of the department of hygiene and bacteriology, Western Reserve University School of Medicine, Cleveland, is spending the year 1925-1926 in study with Prof. Karl Pearson at the Biometric Laboratory, University College, London.

Babies and Children's Hospital Dedicated.—Abraham Flexner, secretary of the General Education Board of the Rockefeller Foundation, New York, gave the address at the dedication of the Babies' and Children's Hospital and Maternity Hospital of Cleveland, October 28. Each of these hospitals has a new seven story building on the campus alongside the School of Medicine and the School of Nursing of Western Reserve University, erected with funds collected in a drive in 1923. The Babies' Dispensary, founded in 1906, was the beginning of the present Babies' and Children's Hospital, while the Maternity Hospital was established more than twenty years ago. The buildings are connected by underground passageways. Much of their walls are of glass with sun porches, fresh air wards and glass rooms. A group has been working for more than seventy-five years in behalf of these hospitals. Places on the boards of trustees of this group have gone from father to son, mother to daughter, and from aunt to niece, the nucleus of the group being the early settlers of the Western Reserve Land Company. "University Hospital," which has just applied for a charter, will bring together the Babies' and Children's Hospital, the Maternity Hospital, the Lakeside Hospital and the Rainbow Hospital for Crippled Children with the School of Medicine and the School of Nursing of Western Reserve for teaching purposes.

OKLAHOMA

Personal.—Dr. Rebecca H. Mason, Chickasha, has been appointed resident physician and professor of public health at the Oklahoma College for Women.——Dr. Galvin L. Johnson, Pauls Valley, has been appointed superintendent of health for Garvin County.——Dr. Carl Puckett, state health commissioner, has been elected vice president of the Oklahoma Public Health Association; Dr. Horace T. Price, Tulsa, was elected president.

OREGON

Increase in Death Rate.—The death rate for Oregon in 1924, according to the Department of Commerce, was 1,139 per hundred thousand of population, as against 1,094 in 1923. The increase was due largely to increases in diseases of the heart and in nephritis, cancer, measles, diabetes and diphtheria.

PENNSYLVANIA

Lectures for Nurses.—The Commission for Prevention and Relief of Heart Disease has arranged a program of lectures for graduate nurses under the auspices of the Public Health Association. The first three were given, October 15, 22 and 29, at the Pittsburgh Free Dispensary, and the next three at various hospitals in the city, November 5, 12 and 19, and the subjects were: "Signs of Incipient Heart Disease"; "Care of the Cardiopathic Child"; "Choice of Occupation for Cardiopaths"; "Types of Heart Disease"; "Technic of Nursing in Heart Disease," and "Demonstration of Modern Methods for the Study of Heart Disease."

Society News.—Dr. Frederick M. Allen, New York, gave the first postgraduate lecture before the Allegheny County Medical Society, November 5, at the Carnegie Lecture Hall, on "Pernicious Anemia."——The Philadelphia County Medical Society, Philadelphia, held a cancer control meeting, November 5, which was addressed by Dr. Joseph C. Bloodgood, Baltimore, on "How Can the Medical Profession Teach the Public and Influence Them to Act in Time So That in Many Instances Cancer Can Be Prevented and Properly Treated in Its Earliest and Most Favorable Stage," and by Frederick L. Hoffman, Newark, N. J., on "Some Cancer Problems of Today."——Dr. F. R. Nager, Zurich, Switzerland, addressed the Philadelphia Laryngological Society, November 3, on "Some More Recent Otological Problems" (lantern slide demonstration).——Dr. George W. Crile, Cleveland, adressed the College of Physicians of Philadelphia, November 4, on "A New Point of View Regarding the Control of the Mortality and Morbidity of Operations Within the Hepatic Tract: A Cytoplasmic Rôle of the Liver." The discussion was opened by Drs. John B. Deaver and John H. Gibbon. Dr. George P. Muller addressed the society on "Certain Experiences with Gallbladder Surgery," and Drs. Alfred Stengel and Joshua Edwin Sweet opened the discussion.——Among others, Dr. Pascal Brooke Bland will address a joint meeting of the Obstetrical Society of Philadelphia and the Philadelphia Pediatric Society, November 10, at the College of Physicians, on "Injuries to the Infant During Delivery."

Philadelphia

University Honors Physicians.—The honorary degree of doctor of science was conferred by the University of Pennsylvania recently on Lord Bertram Dawson of Penn, physician to the King of England and the Prince of Wales; Dr. Charles H. Mayo, Rochester, Minn., and Dr. Rudolph Matas, New Orleans. The university held a special ceremony in Houston Hall, where Provost Josiah H. Penniman conferred the degrees.

The Alvarenga Prize.—The Alvarenga Prize for 1925 has been awarded to Dr. Raphael Isaacs, Boston, for his essay entitled "The Nature of the Action of Roentgen Rays on Living Tissue." The College of Physicians of Philadelphia announces that the next award of the prize, amounting to about $300, will be made, July 14, 1926, provided an essay deemed worthy of the prize shall have been offered. The essays may be on any subject in medicine but cannot have been published. They must be typewritten in English and forwarded without signature but marked with a motto and accompanied by a sealed envelop having on its outside the motto and within the name and address of the author. Essays must be received on or before May 1, 1926. Dr. John H. Girvin, 19 South Twenty-Second Street, Philadelphia, is the secretary of the committee of award.

SOUTH DAKOTA

Asylum for Insane Indians.—The superintendent of the Asylum for Insane Indians at Canton noted, in his annual report to the Commissioner of Indian Affairs, Washington, D. C., that there were 100 patients under treatment during the year ending June 30, 1925, and that the applications for admission of nineteen other patients were declined because of the overcrowded condition of the asylum. There were no cases of smallpox during the year, as employees and patients were protected by vaccination. Grain and other food products are produced on the asylum's own land. The superintendent recommended that 160 additional acres be purchased in order to raise farm products to more nearly supply the needs of the institution; he also recommended the erection of a building for epileptics, a chapel and an amusement hall.

SOUTH CAROLINA

Increase in Death Rate.—The Department of Commerce announces that the death rate for South Carolina for 1924 was 1,300 as compared with 1,185 for 1923, and that it was due largely to increases in the death rates from nephritis, heart disease, measles, whooping cough, pneumonia, typhoid fever, cancer, automobile accidents and enteritis.

TENNESSEE

Hospital News.—The new nurses' home and training school of the Memphis General Hospital, Memphis, will be named the "Dr. Marcus Haase Nurses' Home and Training School," in honor of the late Dr. Marcus Haase.

Society News.—Dr. Carl T. Speck, Cleveland, was elected president of the East Tennessee Medical Association, October 22; Drs. P. L. Brock, Morristown, and Walter S. Moore, Etowah, vice presidents, and Dr. G. Victor Williams, Chattanooga, secretary-treasurer, reelected. The next spring meeting will be in Morristown, and the fall meeting in 1926 in Maryville.

Personal.—The governor has appointed, among other members of the Tennessee Tuberculosis Hospital Commission, Dr. Charles A. Abernathy, Pulaski; Dr. Herbert Acuff, Knoxville, and Dr. James J. Durrett, Memphis. The act creating this commission provides for the establishment and maintenance of hospitals in several grand divisions of the state with the help of the various counties.

TEXAS

Society News.—At the fifty-eighth semiannual meeting of the South Texas District Medical Society, Houston, October 9, Dr. Walter T. Brown, Wallis, was elected president; Dr. William Lapat, Houston, vice president, and Dr. Jewell C. Alexander, Houston, secretary.

Personal.—W. T. Dawson, M.A., for the last two years acting professor of physiology and director of laboratory of pharmacology, Woman's Medical College of Pennsylvania, Philadelphia, has been appointed associate professor of physiology in the Medical Department of the University of Texas, Galveston.

Hatcheries for Top-Minnows.—The board of health of Texas announces plans to establish hatcheries for the propagation of top-minnows *(Gambusia affinis)* with the cooperation of the game, fish and oyster commission, which will furnish the minnows for breeding purposes. The state health officer has advised all communities desiring breeding stock to notify the commission promptly so that there may be sufficient time to propagate enough minnows for stocking all local streams, ponds, tanks or other standing water as an aid in mosquito control.

VIRGINIA

Campaign for Funds.—The Medical College of Virginia, Richmond, will launch a campaign for funds in the near future, it is reported, for a new building for biochemistry, bacteriology and pathology, and will request the next general assembly to increase the appropriation for maintenance of the medical college.

Hospital News.—A committee has been appointed at Farmville to take charge of the erection of a hospital in that community, for which funds will be provided for the cost of the building by the Commonwealth Fund of New York. Drs. William E. Smith, R. Lester Hudgins and Thomas G. Hardy, among others, are on the committee.

GENERAL

Report of Joint Committee on Sight of School Children.—A report has been made by a joint committee of the American Medical Association and the National Education Association, in cooperation with the National Committee for the Prevention of Blindness, on "Conserving the Sight of School Children." The committee studied the practices followed in public schools in caring for the eyesight needs of school children, covering 375 cities, also rural districts in every state, and was assisted by 100 ophthalmologists and by health officials and school authorities. It was found that 3,000,000 school children in this country are handicapped by defective sight and that only half of the total school population of 24,000,000 have their eyes examined and vision tested while attending school. The rural districts generally report a larger percentage of defective vision than the cities. It seems likely, the report adds, that this is due to such differing factors as conditions under which the test results were obtained, bad illumination in rural homes and schools and the small number of corrections provided for rural children. The report summarizes the extent of defective vision in schools and the practices used in conserving the eyesight and gives information for the teacher, school nurse and the school physician in the conservation of vision. The committee was at work more than a year under the chairmanship of Dr. Thomas D. Wood, professor of physical education, Columbia University, New York; it recommends that a uniform law for the examination of the eyes of school children be adopted by all states and cities.

Epidemiologic Report.—The report of the Health Section of the League of Nations, September 15, shows an improvement in the plague situation in India, all of the principal ports with the exception of Rangoon and Bombay having been free from that disease in the four weeks ending September 5. During the period covered by the report, plague was at its annual minimum in most places where it is endemic. There was a fresh outbreak reported from Senegal, Africa, of 119 cases in July, as against seventeen in June. The report shows, however, that cases of plague had occurred in widely scattered places in Africa, Asia and at Pirée in Greece and at Constantinople in Europe. There has been less cholera in India than in 1924, particularly in the valley of the Ganges, and an increase in Burma and in the Madras presidency. A severe epidemic of cholera in Kashmir reached its maximum early in May, and up to July 25 had caused 9,931 deaths, a case mortality rate of 54 per cent. Cholera is endemic in Kashmir, and in 1919 there was an epidemic with 11,516 deaths reported. Yellow fever was reported this year from places in Nigeria, the Gold Coast and Ivory Coast of Africa; one case was reported in Liberia. The report says that the disease appears to be endemic in several areas on the Guinea coast, although the number of cases reported is small. Smallpox has been more prevalent than during previous years in several African countries. There were 966 cases in Algeria this year, as against seventy-two in the corresponding period of last year; 1,546 cases in Nigeria as against 358 last year, and 1,280 as against 118 in the Gold Coast colony. The incidence of smallpox in India was higher this year than in the four preceding years, the maximum having been reached in March-April; 9,931 cases and 2,543 deaths were reported in the four weeks ending July 25, and in the preceding four weeks 12,402 cases and 3,072 deaths. A serious outbreak of smallpox occurred in Korea during the first six months this year, with 2,300 cases and 539 deaths.

Society News.—The next annual Mississippi Valley Conference on Tuberculosis will be held in Chicago under the auspices of the Chicago Tuberculosis Institute in June, 1926. ——At the annual meeting of the American Hospital Association, Louisville, Dr. Arthur C. Bachmeyer, superintendent, Cincinnati General Hospital, Cincinnati, was installed as president; Dr. Richard G. Broderick, director of hospitals, Alameda County Hospital, San Leandro, Calif., was made president-elect; Dr. Walter H. Conley, medical superintendent, Metropolitan Hospital, Welfare Island, N. Y., Miss Blanche M. Fuller, superintendent, Nebraska Methodist Episcopal Hospital, Omaha, and Mr. Wallace W. Kenney, superintendent, Victoria General Hospital, Halifax, N. S., vice presidents; Dr. William H. Walsh, Chicago, executive secretary, and Mr. Asa S. Bacon, superintendent, Presbyterian Hospital, Chicago, treasurer.——At the annual meeting of the Medical Association of the Southwest, El Paso, Texas, November 5-7, Dr. John H. Musser, New Orleans, professor of medicine, Tulane University of Louisiana School of Medicine, discussed "The Diagnosis of Cancer"; Dr. Edward Jackson, Denver, "Recent Views of Cancer by Experience with Ocular Tumors"; Dr. Mallory B. Culpepper, Carlsbad, N. M., "Tularemia"; Dr. Benjamin H. Orndoff, Chicago, professor and director of the division of roentgenology, Loyola University School of Medicine, "Radiotherapy of Malignancy with Special Reference to Breast Carcinoma"; Dr. John C. Wilson, Los Angeles, professor of clinical orthopedic surgery, College of Medical Evangelists, "Evaluation of Surgical Splinting in Spinal Caries," and Dr. Henry A. Rasmussen, U. S. Public Health Service, Fort Stanton, N. M., "Report of a Case of Pulmonary Tuberculosis Treated with 'Sanocrysin'." Colonel Shockey, M. C., U. S. Army, invited the society to the William Beaumont Hospital on the Military Reservation for its annual clinic.——The officers of the Association of American Medical Colleges were reelected at the recent annual meeting in Charleston, S. C. Dr. Hugh Cabot, Ann Arbor, Mich., is president; Dr. David L. Edsall, Boston, vice president, and Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago, secretary. The next annual meeting will be in Cleveland, Oct. 25-27, 1926.

Report of Children's Bureau.—According to a report of the director of the Children's Bureau, U. S. Department of Labor, there were 290,590 children examined under the Maternity and Infancy Act in the fiscal year 1925. There were 10,806 child health conferences, 3,581 prenatal conferences attended by 35,997 women and 8,047 midwives who completed midwives' courses, 622 child health centers and fifty-seven permanent prenatal centers established. All states except Illinois, Kansas, Maine, Massachusetts and Connecticut are now cooperating under the provisions of the Maternity and Infancy Act, under the terms of which each state accepting receives $5,000 outright and an additional $5,000 when matched by the state, and the balance of the appropriation of Congress is distributed among the states on the basis of population. The total amount accepted by the states from the 1924 appropriation was $918,280.49, the largest amount accepted by any one state being about $80,000 by New York. In addition to the work already noted there have been established in twenty-four states a total of about 3,000 "little mothers" classes to teach girls of the seventh and eighth grades or older the proper care of infants, since they are so often their mothers' helpers. Although the "centers and consultations" are for well babies, defects are frequently found which require correction. The most frequent defects are refractive errors, orthopedic defects, nasopharyngeal growths, dental caries, malnutrition and enlarged glands, and these children are always referred to the family physician for correction, if there is a physician. However, poverty and lack of physicians necessitate special arrangements, and a few states have clinics at which defects may be corrected by a staff physician or by a specialist engaged for the purpose. The report says that in most places this work is done by local physicians after nurses have explained the need of it to parents and made special arrangements for it for the indigent. Some states have estimated the percentages of defects that have been thus corrected; Indiana, for example, made a series of surveys to find out what corrections had been made; South Dakota reported 490 corrections among 2,725 cases examined; Pennsylvania reported 8,678 corrections, a great majority of which involved the teeth and tonsils and adenoids.

Bequests and Donations.—The following bequests and donations have been announced recently:

The Lake County Memorial Hospital, Painesville, Ohio, $10,000 by the will of Stella L. Cummings.

The Brooklyn Home for Blind and Crippled Children, the Brooklyn Catholic Orphan Asylum, and the Home for the Aged of the Little Sisters of the Poor, each $5,000, by the will of the late Mary L. Fraser.

The Home for Incurables, New York, about $15,000, by the will of the late Laura Varian.

Jennie Stuart Memorial Hospital, Hopkinsville, Ky., $10,000, by the will of John Hubbard.

The New York Association for the Blind, $5,000, and the Herman Knapp Memorial Eye Hospital, New York, $5,000, by the will of William E. Stiger, New York.

The University, Children's and Chestnut Hill hospitals, Philadelphia, and the Bethesda Children's House, will share equally in the estate of J. E. Smith, valued at more than $50,000, on the death of the last beneficiary of the trust fund.

Roosevelt, Methodist, Rush, and Children's Homeopathic hospitals, all of Philadelphia, each $1,000, by the will of the late Charles Lockhart.

The Women's Homeopathic Hospital, Philadelphia, $3,000, by the will of Madeline K. Vandergrift, Philadelphia.

St. Joseph's Home for the Blind, Jersey City, N. J., the Home for Incurables, St. Vincent's Home, and St. Edmund's Home for Crippled Children, $1,000 each, and $500 to the Misericordia Hospital, by the will of the late Nellie Lynn, Philadelphia.

The Episcopal Hospital and the Women's Hospital, Philadelphia, each $1,000, by the will of Lina B. H. Sedridge, Philadelphia.

The Fifth Avenue Hospital, New York, $50,000, by the will of the late John E. Meek.

Prospect Heights Hospital and Brooklyn Maternity, Brooklyn, N. Y., $3,000, by the will of the late Mrs. Mary A. Carmen.

The Mary J. Drexel Children's Hospital, Philadelphia, an endowment of $5,000 for three beds.

The Jewish Hospital Association of Philadelphia, the residue of the estate of Julia Mayer, whose will stipulates that at least $100,000 shall be expended for an addition for the aged and infirm at the Jewish Hospital as a memorial to her parents, and should this not be considered practical, that sum may be used toward the construction of a maternity building.

James M. Jackson Memorial Hospital, Miami, Fla., $500,000, by the will of James M. Deering, to be used for maintenance.

St. Peter's Hospital, Brooklyn, $500, by the will of the late Mary A. McCafferty.

St. Peter's Hospital, Brooklyn, $500, by the will of the late Andrew Wachter.

The New York Orthopedic Dispensary and Hospital, New York, the residuary estate of the late Mrs. Caroline James, Northport, Long Island, said to be more than $300,000.

Mount Sinai, Presbyterian, Ruptured and Crippled, Skin and Cancer hospitals, New York, $81,657 each, by the will of the late Simon R. Weil.

LATIN AMERICA

Personal.—Dr. Luis da Silva Santos retires from the chair of anatomy at Rio after many years' service.——Dr. J. P. Fontenelle, Rio, director of the *Folha Medica* fortnightly journal, has left for the United States on the invitation of the Rockefeller Foundation to study public health administration and allied subjects.——The *Brazil-Medico* states that the imprisonment of Prof. Bruno Lobo, of the chair of bacteriology, Rio de Janeiro, still continues, and that the students, in protest, are still on strike.——Dr. Rocha Vaz presided at the recent meeting at Rio which decided the foundation of the Instituto Brazileiro de Sciencias. It aims to assemble all those who have contributed to the progress of science in Brazil "by discovery of some law or fact not previously inscribed on the records of pure or applied science."

FOREIGN

Personal.—Dr. Brongersma, professor of urology at Amsterdam, as the spokesman of the corresponding members of the French Association d'urologie, presented 44,000 francs to the association at its annual meeting at Paris in October. The income is to be awarded for the best work on disease of the urinary apparatus.——A communication in the *Presse médicale* states that Prof. I. P. Ivanov, Moscow, is soon to leave for French Guinea for research on anthropoids. He has been offered a place in the Pasteur Institute at Kindia, in French West Africa, where there is a simian colony for research. Ivanov has been conducting research on artificial fecundation for twenty-five years, and is especially interested in cross fertilization by this means.——The *Hospitalstidende* relates that Dr. G. Roussy, professor of pathologic anatomy, Paris, has been invited by the Danish Neurologic Society and the Cancer Research Committee to deliver three lectures at Copenhagen on neurologic topics and radiotherapy of cancer.——Dr. Charles Nicolle, director of the Tunis Pasteur Institute, has been invited by the Argentine public health service to inspect the northern provinces and suggest means to improve health conditions. The *Prensa Médica* hails him as the most important contributor to science that has ever visited Argentina, citing his discovery of the louse as the vector of typhus, his priority in the transmission of syphilis to monkeys and his discoveries in other fields of tropical medicine.

Deaths in Other Countries

Major General Sir **Hayward R. Whitehead**, director of medical services in Malta during the World War, at Lyndhurst, September 28; aged 70.——Dr. **B. Etchepare**, professor of psychiatry at Montevideo, president of the local medical society and of the Uruguay Psychiatry Association, and an officer in the public health service.

CORRECTION

Trip Postponed.—Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, writes that by reason of urgent official duties, he was prevented from making the trip to Plymouth, Cherbourg and Bremen which was noted in THE JOURNAL, October 24.

Government Services

Ambulance Aeroplane

According to the *Army and Navy Journal*, the latest type of army aeroplane is the Cox-Klemin XA-1 type machine, which will carry two patients, an attendant and the pilot at 120 miles per hour; it is equipped with a self-starter and facilities for attending the sick with some comfort. A machine of this type was recently exhibited at Albrook Field, Balboa. This was the first time that an ambulance has been assigned to the air force of the Canal Zone.

Army Resignations

Major Edgar A. Bocock, M. C., resigned, October 31, and has been appointed superintendent of the Colorado General Hospital, Denver. One of Major Bocock's last assignments in the army was as superintendent of the Santa Tomas Hospital in the Panama Canal Zone.——Lieut. James A. Smart, M. C., resigned, effective, November 1.

Veterans' Bureau Resignations

The following physicians recently resigned from the Veterans' Bureau: Dr. Chester C. Box, August 3, at Lake City, Fla.; Dr. George D. Bragaw, June 30, at Palo Alto, Calif.; Dr. Bennette A. Burks, August 31, at Memphis, Tenn.; Dr. Paul G. Haire, August 15, at Rutland, Mass.; Dr. Roy T. Haskell, August 15, at Washington, D. C., and Dr. Edwin F. Sullivan, August 4, at Tupper Lake, N. Y.

Change in Army Transport Medical Service

The Quartermaster Corps of the U. S. Army has inaugurated a policy which relieves from transport duty those medical officers who heretofore have been assigned regularly as transport surgeons. In the future, medical attendance on army transports will be furnished by medical officers who are making the trip as a passenger. The new policy has already gone into effect.

Examination for Army Medical Corps

The Adjutant General announces that examinations of candidates for commission in the Medical Corps of the Regular Army will be held, Jan. 11-15, 1926, at various army posts. Candidates must be not less than 22½ nor more than 31½ years of age, and must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience subsequent to graduation. They must pass the written examination and undergo a physical examination.

Physicians who have licenses from the National Board of Medical Examiners may be exempt from the written examination if they desire on submitting proper evidence. The examination is for the purpose of filling sixty vacancies which exist in the Medical Corps. Successful candidates will be commissioned with the rank of First Lieutenant. Requests for permission to take the examination should be addressed to the Adjutant General of the Army, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 24, 1925.

The Campaign Against Cancer

At the meeting of the grand council of the British Empire Cancer Campaign, it was announced that grants, since the formation of the campaign over two years ago, to existing laboratories, new schemes of research, purchase of radium and commitments, including the formation of the *Journal of Abstracts* and its maintenance, amount to more than $375,000. On the recommendation of the scientific advisory committee, a grant of $5,000 per annum for six years was made to Dr. Thomas Lumsden at the Lister Institute of Preventive Medicine to enable him to relinquish private practice and devote his whole time to continuing his experimental work on serums in connection with seeking a cure for cancer and other allied lines of research. The application of Dr. Mottram, to which a grant has already been made of $4,000, to bring his scheme into line with the recent discoveries of Dr. Gye and Mr. Barnard, was approved. The radiology committee reported that the whole of the $25,000 worth of radium purchased for the campaign for the purpose of cancer research has been allocated to various hospitals. It was reported that Lieut.-Gen. Sir John Goodwin (formerly director general of the army medical service), organizing adviser to the campaign, is completing his plans for the formation of permanent county committees in support of the central campaign.

Osteopathy, Chiropractic and Other Cults

In previous letters, the introduction of osteopathy into this country and the formation of the British Osteopathic Association and its attempt to obtain recognition from the government have been described (THE JOURNAL, June 27, p. 2014). Osteopathy and other eccentric cults have now attracted so much attention from the public that the medical profession cannot entirely ignore them.

Sir Holburt Waring devoted his presidential address to the Medical Society of London to "Osteopathy, Chiropractic and Other Cults and Medicine," because of inquiries he had received from medical friends as to their advantages, disadvantages and dangers. He began by explaining that osteopathy was a system of treatment based on the assumption that all disease was caused by some part of the organism being out of adjustment or alinement, as in the case of a displaced bone, cartilage or ligament, or in the case of adhesions or contractions of muscle resulting in unnatural pressure on, or obstruction to, a nerve or blood vessel. Investigation had shown him that different osteopaths had varying ideas as to what was comprised in the term and what were the limitations of treatment. A later definition seemed to include the use of the term "inhibition" or the relief of pain or muscular spasm by the application of steady pressure. Osteopathic treatment consisted in manipulation to correct the supposed displacement. "Chiropractic" had been defined as a system of adjusting subluxated vertebrae by hand for the restoration of health. Its theory is that disease is the result of pressure on nerves as they emerge from the spine. Diseases of the eye and ear were treated by both osteopaths and chiropractors in a similar manner, although the nerves supplying these organs did not come from the spinal cord.

A number of other cults had sprung from these, of which Sir Holburt referred to only one—"naprapathy." Its exponents asserted that the basal centers of life were located in the medulla oblongata or basal portion of the brain and, therefore, manipulations were applied to the nearest portion of the surface, the nape of the neck. Thus, all these cults based their practice on a theory that was untrue. Patients suffering from severe affections were liable to be seriously damaged by having these methods practiced on them. In a case of appendicular abscess, the treatment was applied and the abscess burst, with fatal result. In many cases the manipulations caused acute dissemination of carcinomas and sarcomas. Sir Holburt had also seen many cases of tuberculous disease of joints, in which serious damage had been caused by forcible manipulation and movement. Some of the reported cures were probably due to suggestion, others to the result of manipulations and the breaking of adhesions between muscles and nerves and the adjacent tissues.

In conclusion, Sir Holburt held that our laws ought to be amended so as to place all medical practitioners on the same educational level, because of the danger to the public of being deceived by plausible theory and unfounded claims. A number of graduates of the schools of these cults in the United States had come to this country and were attracting patients by blatant advertisement. The government should take a strong stand in protecting the health and life of the community.

The Influence of Sunshine and Open Air on Health

At the recent international congress on climatology held at Davos, Prof. Leonard Hill read an important paper on the influence of sunshine and open air on health, a subject which he has made very much his own. He said that there was no evidence that "ionization" of the air had any influence on health, nor were the ozone content and the chemical purity of the air of fundamental importance at mountain and seaside resorts. The existence of ozone at sea level was not proved. The chemical purity of the air, so far as concerned carbon dioxid and oxygen, was not of any importance, and no chemical poison was present in the air of crowded rooms. It was microbic infection by catarrhal diseases that occurred in stuffy rooms. Sedentary work in warm, stagnant air required compensation by vigorous exercise and by sleeping with open windows. The tendency in recent years had been to overheat rooms and to overclothe. Turning to the effects of light, Professor Hill emphasized the value of ultraviolet irradiation and the loss of these rays from smoke pollution, glass windows and clothes. Tuberculosis should not be treated in hot sun boxes, but with cool air and sun treatment in the early morning. Skyshine gave much more ultraviolet radiation than direct sunshine. All children in smoky cities should be given arc light baths twice a week in winter to prevent disease. Hospitals should be built as bungalows out in the country with verandas and open courts for the beds. Patients should be prepared for operation by ultraviolet irradiation, which raises the resistance of the body to infection.

Fatal Explosion in a Boy's Mouth During an Operation

A fatal explosion, of which the cause remains obscure, has taken place in a boy's mouth during an operation. A boy, aged 16, collided with a motor car while cycling. He was taken to the hospital, where his jaw was found to be fractured. In the course of an operation on the jaw, it was found necessary to keep the teeth dry by means of warm air supplied through a dental syringe. Ether and oxygen were the anesthetics used. On the third application of the warm air, an explosion occurred at the back of the boy's mouth. Acute hemorrhage followed, and he died in ten minutes. At the inquest, Mr. Percival Cole, a surgeon and an authority on injuries of the jaw, who performed the operation, said that after the explosion the apparatus used burst into flames. During the war, 1,600 cases of this sort passed through his hands, and what was done in this case was merely routine work. Ether is very inflammable, but there was no naked flame near. In his opinion, the explosion was due to a mixture of vapors. The teeth were smeared with alcohol and had afterward to be made perfectly dry, otherwise the dental cement would not adhere. The anesthetist gave evidence that in 1,200 cases he had never encountered anything similar to what happened in this case. The jury returned a verdict that death was due to accident.

The Post-Graduate Medical Journal

The Fellowship of Medicine and the Post-Graduate Medical Association have issued the first number of a new monthly medical journal, of which the price is 12 cents. Its object is to supply the postgraduate student with details of postgraduate teaching in this country and elsewhere; to supply a medium for the expression of his requirements, and, if need be, the ventilation of his grievances. The first number begins with a foreword from Sir William Hale-White, who refers to some of the difficulties of efficient postgraduate teaching in this country, especially to the dissatisfaction engendered by endeavoring to teach undergraduates and postgraduates together. He advocates the building, in London and other large cities, of medical schools for postgraduates only, with hostels attached to them. The journal will publish a selection of the lectures delivered at the instance of the Fellowship of Medicine, supplemented by specially contributed articles and clinical descriptions. Only such subjects as will from their essential character make a strong appeal to the general practitioner will be published. The first number contains two lectures: one, by Sir Humphry Rolleston, is on the "Medical Aspect of Gallstones." He concludes that there are two factors in the formation of gallstones—the infective and the metabolic, which may operate alone but probably more often operate together. The most common form which the first factor takes is infection of the alimentary canal with *Bacillus coli*, which is carried to the liver and excreted in the bile. The metabolic factor consists of an increase in the cholesterol content of the blood and so in the bile. The second lecture is by Dr. T. Watts Eden, on the "Prevention of Puerperal Sepsis." He points out that puerperal sepsis occurs in all kinds of practice—in the private practice of midwives and physicians, among the well-to-do as well as the poor, and in midwifery hospitals. The causes he regards as obscure. One that he emphasizes is coitus in the last four weeks of pregnancy. Apart from gonorrhea infection, he considers that microbes may thus be conveyed. In regard to prevention, he recommends antenatal care and guarding the patient from all possible sources of infection during and after labor.

Tuberculous Cattle and Environment

In the *Veterinary Journal*, Dr. John Robertson, health officer for Birmingham, has called attention to a serious defect in our treatment of the tuberculosis problem in cattle. He has no hesitation in saying that at most dairy farms we are unwittingly doing our best to propagate tuberculosis. We keep the majority of our dairy cows in dark, ill ventilated sheds; we milk these cows twice or thrice a day—an exhausting process—and in many cases we underfeed them. "Are we not," asks Dr. Robertson, "concentrating too much on testing and slaughter and not devoting enough of attention to the more difficult question of the cow's environment and food?" His main recommendation is that the veterinary profession must be convinced of the necessity for much better cowsheds and that the farmer must be taught the predisposing causes of tuberculosis and must avoid them on his farm. On the subject of tuberculous meat, Dr. Robertson says that while its consumption is repugnant he has never known the diseased meat usually found in slaughterhouses to produce ill effects. He further points out that meat infected with anthrax has been cooked and consumed without bad results and that it is dangerous only in the process of handling before cooking.

Children Killed in Street Accidents

The terrible increase of fatal accidents in the streets, due to the motor traffic, has been pointed out in previous letters. In a small volume, just published by the National Safety First Association, entitled "Safety First for School and Home," the author, Mr. G. A. Christian, gives some valuable hints from his experience as inspector of schools to the London County Council. He tells us that of the appalling number of persons killed in the streets of London last year—866—more than a third were children. Children have one large source of danger special to themselves, that associated with mischief and the playing of games in the street. Many juvenile accidents occur from stealing rides on vehicles and from running into the road after a ball.

PARIS

(From Our Regular Correspondent)

Oct. 12, 1925.

Industrial Diseases in France

The official bulletin of the ministry of labor contains information pertaining to industrial diseases in 1923, and their relation to the act of Oct. 25, 1919. Thus far, under the provisions of this act, only lead and mercury poisoning are considered. There were 1,025 cases of lead poisoning in 1923, as against 797 in 1922. The increase may signify merely that, as the law becomes better known, notifications are made more regularly. In 744 cases the diagnosis was simple lead colic. In 114 cases no exact diagnosis was made. The other cases are distributed among the complications of lead poisoning. The period of disability, which ranged from eight to fifteen days, was stated in only half of the cases. One notification read, permanent partial disability; another, probably permanent disability. Nine notices mention hospitalization of the patient, and nine cases were fatal.

The industries that gave rise to lead poisoning were enameling of metals, 278 cases; manufacture and maintenance of storage batteries, 249 cases; manufacture of red lead, 150 cases; metal foundries, 58 cases, lead foundries and plating with lead, 54 cases; painting of buildings, 41 cases; printing, 26 cases, and others.

In 1923, the number of cases of mercury poisoning was reduced to five. The diagnoses were: mercurial stomatitis, one; mercurial trembling, two; nephritis, two. In one case, disability extended over several months.

Taxi Chauffeurs and Mental Affections

Addressing the Société medico-psychologique, April 27, 1925, Toulouse, Dupouy and Schiff pointed out that they had examined the mental condition of thirty-six taxi chauffeurs. They found: psychasthenia, obsessions and impulses without dementia, 12; toxicomania, 2; epilepsy, 2; chronic alcoholism, 5; alcoholism with symptoms of dementia, 2; various dementias, 2; general paralysis, 10. They emphasized the great medicosocial interest that the question presents.

Emergency Treatment of Wounds

Lenormand and Moure, addressing the recent international congress on industrial accidents, discussed the influence of recent war experience on the therapeutics of wounds. They distinguished a first period during which wounds were dressed and patients then evacuated; a second period of débridement and drainage; a third period of continuous irrigation following débridement and succeeded by secondary suturing, and finally a fourth period, which began with the primary suturing of fresh wounds. Primary suturing of wounds, after excision of contused tissues, effects rapid recovery in slight wounds but it is not without danger.

Lenormand and Moure pointed out that the objects sought in treating war wounds and those of civil practice are not the same. War surgery is collective; it seeks to limit the number of losses, without spending too much time with individual cases. The cases in which primary suture did not prove successful were given secondary consideration because the method presented great advantages for the state.

In industrial accidents, however, surgery must sacrifice everything for the safety of the injured individual. Even the slight possibility of loss of life or limb will influence the choice of a therapeutic method.

Lenormand and Moure emphasized the influence of first dressings on the whole evolution of the wound, and the need of complete examination of the patient. They emphasized the importance of the extraction of foreign bodies from punctured wounds. The search for fragments of pins and needles should always be considered a delicate operation, since they may entail considerable laceration and expose the patient to infection. They discussed likewise immediate therapeutic indications in (1) wounds limited to the soft parts; (2) wounds affecting the bones and joints, and (3) crushed and dismembered limbs.

1. Lenormand and Moure explained primary suture of wounds of the soft parts. Its indications seem limited to fresh wounds of the scalp and face and to superficial cuts about the arms and legs. In contused wounds, especially where there are many muscles, it is more prudent not to attempt primary suture. Every case in which a wound is sutured primarily requires close supervision of the local and general condition. The tendons and nerves must not be sutured other than in fresh wounds susceptible of primary suture. Wounds of trunk arteries are subject to conservative operation when an associated fresh wound of the soft parts in itself justifies primary suture. Whenever infection is probable, the two ends of a vessel in the wound should be sutured.

2. As to wounds affecting the bones and joints, in open fractures immediate intervention is required. The object should be to cleanse the traumatized area and to reduce and immobilize the fracture. Only fragments that are completely detached should be removed; all bone splinters that have preserved a connection with the soft parts should be left. When the area of the fracture has been cleansed, the fragments should be adjusted and maintained in place. Plaster-of-Paris casts do not give good results. It is best to use apparatus that combines continuous extension and suspension. Osteosynthesis in complicated fractures should be avoided if possible. Bone union can be best accomplished by means of external apparatus. Internal prosthesis by sutures, plates, clamps, rings and the like is seldom indicated in complicated fractures, and it should never be regarded as permanent. Its sole object is to prevent, for the time being, the displacement of a fragment. It would be exceedingly imprudent, after having cleansed the area of a complicated fracture, to employ osteosynthesis, to close the wound and treat it like a closed fracture. In wounds of the joints, the operative indications vary with the importance of the lesion. In simple punctured wounds of the joints no operative intervention is indicated; compression and immobilization should be the rule. Larger wounds of joints, without bone lesions, are susceptible of primary suture, which constitutes the only means of preventing secondary infection. Joint wounds associated with grave bone lesions require either primary resection or amputation.

3. In dealing with crushed and dismembered limbs, the authors emphasize solely the need and technic of amputation. If the patient is in shock, it is preferable to institute at first active general therapy and to postpone amputation until the general condition of the patient is satisfactory. Sometimes the patient, although he has lost little blood and is still conscious (presenting neither nervous nor hemorrhagic shock) grows steadily weaker in spite of the usual protective and restorative measures employed. In such cases it may be assumed that he is suffering from toxic or from toxic-infectious shock. The only means of saving such a patient is to amputate at once. If a tourniquet has been applied, it should not be removed before amputation. There should be no amputation with flaps and no closure of the wound. The indications for circular amputation at the level of the injury are here the same as in war. General anesthesia should be light and preferably ethyl chlorid or nitrous oxid. Blood transfusion or the injection of physiologic sodium chlorid solution should be extensively used.

Lenormand and Moure discussed also the indications for antitetanus and for antigangrene serotherapy.

BERLIN

(From Our Regular Correspondent)

Oct. 10, 1925.

A Department for Industrial Diseases

Through the action of the Prussian minister of commerce and industry, a department for industrial diseases has been established in the Empress Augusta Victoria Hospital in Berlin. The location of the hospital in the eastern section of the city, in the vicinity of numerous manufacturing establishments, makes it an excellent vantage point for the treatment of industrial injuries. Although Italy, two years before the war, established in Milan the clinic for occupational diseases, under the direction of Professor Devoto, and also soviet Russia has founded richly endowed institutes for the investigation of the relations between industrial work and disease in workmen, Germany has had until now no similar institution. Since July 1, 1925, compulsory medical notification of important industrial diseases, such as lead poisoning, glassmakers' cataract, benzene and anilin poisoning, has been in force. In order that the medical profession may become more familiar with these diseases, which, fortunately, are comparatively rare, lectures and laboratory courses in the field of industrial diseases in general have been organized.

Excess of Deaths over Births in Berlin

In recent years, Berlin has had an excess of deaths over births. However, during certain weeks of 1924, there was a slight predominance of births over deaths, and, during the first quarter of 1925, the births in Greater Berlin exceeded the deaths by almost 600 (in 1924, in the corresponding period, there were 4,400 more deaths than births). This better result was secured, in spite of the fact that, in February and March, infant mortality and death from pulmonary tuberculosis and other respiratory diseases is higher than for the other months. Taking these facts into account, an excess of births over deaths amounting to 6,000 may be expected for the year 1925, as against an excess of deaths over births of 5,000 for 1924. From the reports so far, also the mortality rate for 1925 will be improved, as against the rate for 1924.

The Preservation of Milk

Not only in the medical press but also in lectures and in petitions, there have been of late repeated complaints from physicians, veterinarians and others, on the use of milk preservatives. The employment of these preservatives was due, in part, to the erroneous belief that the addition of alkali carbonates (soda, for example) was permissible.

Under war and postwar conditions, treatment of slightly sour milk with alkali carbonates had to be permitted, since fresh milk was scarce and the supply of milk that reached the places of consumption in a slightly sour condition could not be dispensed with. The partial neutralization of milk slightly sour made it usable. Neutralization, however, had to be carried out with considerable care in order to be successful. Therefore, in 1918, the federal health bureau published directions for the treatment, with alkali carbonates, of whole milk that was slightly sour. Permission to use this method was accorded only to those dairy establishments which were supervised by efficient communal leagues and whose equipment and business management guaranteed that the method would be followed. Only milk with less than 15 degrees of acidity could be subjected to such treatment, the acidity could be reduced only to 6 degrees, and the treatment had to be carried out under the direction of a chemist, who assumed responsibility for errors. Treated milk had to be plainly tagged, and care had to be taken to prevent its use for children under 2 years of age. There is no proof that any injuries resulted from its use, and if the directions for treatment were strictly followed, no soapy taste nor alkaline reaction resulted. In the meantime the supply of milk has increased. Permission to use the neutralization method has therefore been withdrawn. Nor is treatment of milk with hydrogen peroxid now permissible.

The Licensing of Chauffeurs

The city council of Leipzig has passed an ordinance requiring all chauffeurs to pass an examination as to their technical qualifications and mental fitness before they are granted a license. The licensing board, acting in cooperation with Professor Klemm, the director of the department for applied psychology of the Psychologic Institute at the University of Leipzig, has adapted the existing psychotechnical methods to the special purpose in hand and has applied them thus far to about thirty applicants.

GENEVA

(From Our Regular Correspondent)

Oct. 15, 1925.

Criminal and Therapeutic Abortion

In all civilized countries, criminal abortion is forbidden by law and punishment is meted out to offenders. The only exception to the law is when the mother's life is endangered by pregnancy and the only way to save her is by inducing miscarriage. Various legislations admit this exception, and the codes of several of the Swiss cantons contain clauses in which this principle is admitted and provided for.

The drafts of the new criminal code of Switzerland, recently drawn up, sanction the classic rule and include abortion among misdemeanors. The commission appointed to draw up the draft in September last adopted the federal council's point of view, which provides for this therapeutic exception in article 107, which reads:

> Abortion performed with the consent of the pregnant person by a physician is not punishable if undertaken for the purpose of removing a danger impossible to deal with otherwise, threatening the mother's life or portending serious and permanent detriment to her health.

This text was vigorously assailed, and several amendments were proposed to enlarge the limits between which abortion is criminal. Finally, the commission decided to add other exceptions to Article 107, so that if it is finally adopted abortion will be admitted not only when the mother's life is involved, but also when pregnancy results from rape or incest; when at the time of conception the mother was insane, an idiot, unconscious or incapable of resisting—hypnosis, narcosis, etc., or if at the time abortion is practiced, the father or the mother is insane.

Prof. Paul Logoz of the faculty of law of the University of Geneva contested these innovations before the commission, putting forward the following arguments:

In the case of rape. At first sight, this might appear to be perfectly legitimate, but in practice it may not be feasible because it raises the question of proof of rape. To exact a legal sentence in all due form would in most instances render the law permitting the victim to submit to abortion deceptive. Even proof of rape by witnesses—should this be considered sufficient—would be very exceptionally possible; rape is not committed before witnesses, and the identity of the aggressor is not always known. As to the physician whose services are solicited, how can he at this late date (that is to say, when all traces of violence have usually disappeared) establish undeniably the fact that the woman has been raped? Therefore, is he to proceed with abortion simply on the affirmation of his client? What upright physician would venture to risk his professional reputation in these circumstances?

The case of incest. Professor Logoz next shows that in this case the situation becomes still more intricate, because by revealing the origin of her pregnancy, the victim exposes herself to criminal proceedings against her. Now, the commission considered that all that was necessary was to assure an effective control of therapeutic abortions by compelling the physician to inform the proper authorities of the operation about to be undertaken. It goes without saying that no matter what authorities are notified, none are bound by professional secrecy. On the contrary, when unlawful acts are brought to their notice, it is their strict duty to notify the public prosecutor.

Such are Professor Logoz' legal arguments in the case of rape and incest. As to the other hypotheses—impregnation of an idiot, etc., or insanity of the father or mother at the time of the induced abortion—these are strictly questions of eugenics. It is to improve the race that the fetus is destroyed. Professor Logoz is likewise opposed to these reasons, and he points out that it must be unqualifiedly demonstrated that defective individuals invariably engender defective offspring. There are many physicians who maintain that proof of this has never been given and that, on the contrary, the laws of heredity are as yet insufficiently known, so that it is quite impossible to offer an opinion as to the future of the descendants with any degree of certainty.

Dr. F. Naville of Geneva has recently put forward some interesting statistics which somewhat invalidate Professor Logoz' point of view. For example, he relates the history of several consecutive generations of a family in which vagrancy, alcoholism, immorality, prostitution, imbecility, insanity and criminality were family qualities. Of the 310 subjects comprised in the generations whose history could be reliably studied, practically none—children or adults—were spared the defects of their ancestors.

Naville also gives the genealogical tree of five generations descended from a mentally defective female. Of 834 subjects composing this family, there were 709 among whom there were 181 prostitutes, 142 beggars and vagrants, seventy-six criminals (seven being murderers), and sixty-four who had been in prison for various misdemeanors and in all had produced 106 illegitimate offspring. Taken altogether, the members had passed 116 years in prison and had been supported or aided by the state for 734 years, representing a cost of about six million francs ($1,200,000).

Given such data as these and many similar ones from other sources, it is evident that anything that can be done to improve society should be seriously discussed, be it induced abortion or sterilization of defective individuals.

Commi

Francke Huntington Bosworth, New York; Bellevue Hospital Medical College, New York, 1868; professor diseases of the throat, 1882-1898 at his alma mater; professor diseases of the throat 1898-1906 and since 1906 professor emeritus at the University and Bellevue Hospital Medical College; consulting physician to the Presbyterian and St. Vincents' hospitals; past president of the American Laryngological Association, and the American Climatological Association; author of the "Handbook of Diseases of the Throat and Nose," "Treatise on Diseases of the Nose and Throat" and other works; aged 82; was found dead in bed, October 17, of accidental asphyxiation.

William Morgan Case Bryan ⊕ St. Louis; Johns Hopkins University Medical Department, Baltimore, 1902; formerly instructor in anatomy, ear, nose and throat diseases, St. Louis University School of Medicine, and instructor in clinical laryngology and rhinology at Washington University Medical School, St. Louis; member of the American Academy of Ophthalmology and Oto-Laryngology; at one time on the staffs of the Alexian Brothers' and St. Louis City hospitals; aged 50; died, October 9, following a long illness.

Charles Dennison Smith, Portland, Me.; Medical School of Maine, Portland, 1879; member of the Maine Medical Association; formerly professor of physiology at his alma mater; at one time city physician and president of the state board of health; for many years superintendent of the Maine General Hospital; aged 70; died, October 11.

James Moorhead, Marion, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1893; formerly assistant to the chair of theory and practice, and lecturer on gy at his alma mater; member of the board of formerly a druggist; aged 75; died, October 11, of emorrhage.

Belville Watson, Lock Haven, Pa.; University of nia School of Medicine, Philadelphia, 1863; meme Medical Society of the State of Pennsylvania; of the Clinton County Medical Society; Civil War iged 87; died, October 10, of cholecystitis.

ı **Stewart I. McDowell,** Chicago; Northwestern y Medical School, Chicago, 1891; member of the tate Medical Society; on the staffs of the Washing- and German Deaconess hospitals; aged 67; died, !1, of organic heart disease.

rederick Herbert ⊕ Philadelphia; Jefferson Medical ıf Philadelphia, 1883; ophthalmologist to the Abing-) Memorial Hospital; for several years member of enham Township board of health, and board of edu- iged 65; died, October 12.

l **Woodford Bates** ⊕ Louisville, Ky.; University of e School of Medicine, 1896; served in the M. C., rmy, during the World War; superintendent of the y State Tuberculosis Sanatorium, where he died, 17, aged 51.

:**ar Erni,** New Albany, Ind.; Louisville (Ky.) Medical 1883; formerly professor of general and descriptive , Southwestern Homeopathic Medical College and l, Louisville; aged 68; died, October 17, of heart

J. Haralson ⊕ Forest, Miss.; Louisville Medical 1886; formerly president of the Mississippi State Association and the Scott County Medical Society; of the state board of health; aged 68; died, October

s **Frank Wallis,** Washington, D. C.; University of lvania School of Medicine, Philadelphia, 1895; served M. C., U. S. Army, during the World War; aged 58; ctober 15, at Asheville, N. C., following a long illness.

s **C. Hay** ⊕ Laurel, Neb.; University of Manitoba / of Medicine, Edmonton, 1895; president of the Dixon-Thurston-Wayne-Dakota Counties Medical Society; 4; died, October 12, of pulmonary tuberculosis.

les Meredith Garth, Louisville, Ky.; University of ille School of Medicine, 1906; member of the Kentucky ledical Association; served in the M. C., U. S. Army, the World War; aged 45; died, October 14.

Holly Humphrey ⊕ Endicott, N. Y.; Albany Medical :, 1913; physician in charge of a hospital bearing his served in the M. C., U. S. Army, during the World iged 38; died, October 11, of pneumonia.

cis Willard St. John ⊕ Weedsport, N. Y.; Albany ıl College, 1887; for sixteen years health officer of Weedsport; past president of the Cuyahoga County Medical Society; aged 60; died, suddenly, in October.

Joseph Warren Richardson, Seattle; University of Vermont College of Medicine, Burlington, 1903; member of the Washington State Medical Association; on the staff of the Providence Hospital; aged 45; died, October 8.

George Clifton Hall ⊕ Richmond, Va.; Medical School of Harvard University, Boston, 1890; medical director of the Life Insurance Company of Virgina; aged 57; died suddenly, October 12, of cerebral hemorrhage.

Henry Alexander Gribbon ⊕ Poughkeepsie, N. Y.; University and Bellevue Hospital Medical College, New York, 1899; on the staff of the Vassar Hospital; aged 48; died, October 18, of heart disease.

Edward Giles McConnell ⊕ San Francisco; Cooper Medical College, San Francisco, 1893; member of the American Urological Association; aged 57; died, October 19, of chronic nephritis and uremia.

Charles W. Ely ⊕ Cheshire, Ohio; Starling Medical College, Columbus, 1890; aged 57; died, October 11, of a self-inflicted bullet wound, while suffering from chronic nephritis and heart disease.

James Barbour Boldridge, Winston, Va.; College of Physicians and Surgeons, Baltimore, 1893; member of the Medical Society of Virginia; aged 72; died, October 1, at Culpeper, of angina pectoris.

Anna M. A. Hahn, Chester, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1900; Hahnemann Medical College and Hospital, Chicago, 1901; died, October 12, following a long illness.

⊕ Indicates "Fellow" of the American Medical Association.

Abram Vernon Hicks, Pittsburgh; University of Pitts School of Medicine, 1907; member of the Medical Society the State of Pennsylvania; aged 41; died, Octo pneumonia.

Jacob Read Lincoln, Millbury, Mass.; Medical Harvard University, Boston, 1888; member of chusetts Medical Society; aged 63; died, Septen myocarditis.

Abel Anderson, Denton, N. C. (licensed, North member of the Medical Society of the State of N lina; aged 70; died, October 14, of cerebral hemorrh

John J. Valentini, Baltimore; Baltimore University Sc of Medicine, 1889; formerly a member of the school bo aged 63; died suddenly, October 23, of heart disease.

John Christian Bullitt, Wayne, Pa.; University of P vania School of Medicine, Philadelphia, 1896; aged recently, at Vineyard Haven, Mass., of heart diseas

Earl Thomas, Hoxie, Ark.; Washington Universit School, St. Louis, 1905; member of the Arkansas Society; aged 47; was found dead, October 13.

Lanier Dunn Pole ⊕ Hot Springs, Va.; Univers ege of Medicine, Richmond, 1906; aged 41; died suddenly, October 17, near Staunton, of cerebral hemorrhage.

Abel Braslau ⊕ New York; Medical Department University of the City of New York, 1889; aged 61; suddenly, October 19, of heart disease.

Lee Victor Knapp, Danbury, N. H.; Baltimore Medic College, 1897; member of the New Hampshire Medical Society; aged 59; died, in October.

Lewis Everhard Sisler, Akron, Ohio; Western Reserve University School of Medicine, Cleveland, 1883; aged 65; died, October 19, of heart disease.

William Powers Crane, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1925; aged 25; died suddenly, October 16.

Dean Gilkey, Walville, Wash.; University of Pennsylvania School of Medicine, Philadelphia, 1918; aged 37; died, October 5, at Eugene, Ore.

William Frank Steer, Cleveland; Cleveland Uni ity of Medicine and Surgery, 1896; aged 56; was killed, C ber 16, in an automobile accident.

H. Powell Luckett, Bastrop, Tex.; University of Louisville (Ky.) School of Medicine, 1867; aged 78; died, October 7, of cerebral hemorrhage.

William T. Pace, Monroe, Ky.; University of Louisville School of Medicine, 1874; aged 78; died, October 16, following a long illness.

Charles Isham, Little Falls, N. Y.; Chicago Medical College, 1865; Civil War veteran; aged 83; died, October 16, at a local hospital.

Clyde Dee Bothwell ⊕ Oelwein, Iowa; St. Louis College of Physicians and Surgeons, 1907; aged 42; died, October 19, of heart disease.

Louis Curtis Wood ⊕ Poughkeepsie, N. Y.; Bellevue Hospital Medical College, New York, 1881; aged 69; died, September 21.

William Knight, Cincinnati; Medical College of Ohio, Cincinnati, 1875; aged 75; died, October 13, at home in Madeira, Ohio.

Victor Noel, New York; University of Paris, France, 1880; died, September 26, at Nice, France, following a long illness.

John C. Bishop, Gainesville, Fla.; St. Louis (Mo.) College of Physicians and Surgeons, 1891; aged 58; died, October 9.

Thomas Ezra Guild ⊕ Boston; University of Vermont College of Medicine, Burlington, 1892; aged 57; died, October 9.

J. Ezra Blanchard, Ozark, Ill.; Eclectic Medical Institute, Cincinnati, 1895; aged 54; died, October 12, of carcinoma.

Clay D. Fellows ⊕ Algona, Iowa; Keokuk Medical College, 1892; aged 57; died, October 13, of heart disease.

Herman J. Groesbeck, Cincinnati; Miami Medical College, Cincinnati, 1873; aged 76; died, in October.

Homer H. Pratt ⊕ Brookfield, Mo.; Rush Medical College, Chicago, 1872; aged 77; died, October 15.

Francis B. Grew, Hoboken, N. J.; L.R.C.S., Edinburgh, Scotland, 1875; aged 75; died, in October.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

HORSE DUNG ALLERGEN-SQUIBB, HOUSE DUST ALLERGEN-SQUIBB, LE PAGE'S GLUE ALLERGEN-SQUIBB AND STREET DUST ALLERGEN-SQUIBB NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

Among the allergic protein preparations of E. R. Squibb & Sons, offered as a means of determining specific hypersensitiveness, are the following: Horse Dung Allergen-Squibb, stated to be the protein from the dung of the horse; House Dust Allergen-Squibb, stated to be the protein from ordinary house dust; Le Page's Glue Allergen-Squibb, the protein isolated from "Le Page's Glue"; Street Dust Allergen-Squibb, stated to be the protein from ordinary street dust.

The composition of house dust varies with the contents of different houses and with their location; therefore the protein obtained from house dust must vary widely. Similarly, the composition of street dust is dependent on the material that goes to make up the dust on streets in different localities. Le Page's Glue is a product of unstandardized composition; hence there is no guarantee that the protein isolated from Le Page's Glue is uniform. As the composition of horse dung, house dust, glue and street dust is indefinite, it is irrational to test the hypersensitivity of a patient by means of a stock preparation; instead, an extract should be prepared from material which is likely to correspond with that to which the patient is sensitive.

In consideration of their indefinite composition, the Council finds Horse Dung Allergen-Squibb, House Dust Allergen-Squibb, Le Page's Glue Allergen-Squibb and Street Dust Allergen-Squibb unacceptable for New and Nonofficial Remedies.

VITANOL NOT A[illegible]ABL[illegible]

Report of the Cou[illegible] Pharmacy

The Council has authorized publication of the statement that follows.

W. A. Puckner, Secretary.

Vitanol (Daub Chemical Company, Brooklyn), "The all-year-round tonic" is stated to have the following composition:

> "Egg Yolk 8%, Lecithin 1.5%, Hemoglobin 1.5%, Ferri Albuminate 1.5%, Cod Liver Oil 25%, Glycerin 9.5%. Vehicle used contains sugar, terpenless oil of lemon, and whiskey giving an alcoholic equivalent of 20%."

This alcoholic "tonic" is exploited with unwarranted therapeutic claims, such as these:

> "Just what the body needs"
>
> "It supplies the human cell what it needs to properly function. In other words, an Ideal Vitamin Emulsion which supplies the physiological and biological requirements of life."
>
> "Bodily functions are greatly stimulated with Vitanol due to the fact that it augments the body heat."

The following recommendations for the use of Vitanol appear on the trade package:

> "Indicated in the treatment of influenza, malnutrition, chlorosis, anemia, general debility, nervous disorders, coughs, colds, pulmonary diseases, lowered vitality and allied diseases."

The information submitted to the Council does not show that the vitamin potency of the mixture is determined or that the quality of the lecithin, hemoglobin, "ferri albuminate" or cod liver oil is controlled. Vitanol, being a complex, irrational mixture of uncontrolled composition, marketed with unwarranted therapeutic claims and in a way to invite its indiscriminate and ill advised use by the public, is inadmissible to New and Nonofficial Remedies.

Correspondence

MORTALITY FROM CANCER

To the Editor:—Referring to the editorial comment (THE JOURNAL, October 17, p. 1224) on my article on cancer mortality in the ten original registration states: In the course of the preparation of the bulletin of which this article is a summary, I, too, was struck by the apparent discrepancy between my conclusions for the ten original registration states and those arrived at by Dr. William T. Howard in his study of the statistics of the city of Baltimore (THE JOURNAL, Jan. 13, 1923, p. 71). This apparent discrepancy led me, of course, to careful study of Dr. Howard's article.

From internal evidence in the article itself, it was apparent that the figures and the rates published were erroneous and, therefore, the conclusions based thereon could not be correct. In his article, Dr. Howard publishes the following table for the city of Baltimore:

Number of Deaths and Rate of Death per Hundred Thousand Living Female Inhabitants 40 Years of Age and Over, from Cancer of the Breast and Uterus, for the Census Years 1880 to 1920, Inclusive

	Total		Breast		Uterus	
Year	Deaths	Rate	Deaths	Rate	Deaths	Rate
1880..............	94	61	37	24	57	37
1890..............	158	76	50	24	108	52
1900..............	161	64.	52	20	109	43
1910..............	199	65	74	24	125	41
1920..............	205	48	80	18	125	30

From his table the following conclusion is drawn:

> From these data, it appears that after 1880 there was no increase in mortality from cancer of the breast, and since 1890 from cancer of the uterus, and from cancer of these two organs taken together. Thus, when rates that approach specificity are obtained, in respect to cancer of these two organs, in which disease in fatal stages is readily diagnosable, an apparent increase in mortality is converted into an actual decrease. Therefore, it seems to be established that during the last forty years, cancer of the breast and uterus (including the other female organs of generation) has shown no real advance in mortality, and that there is a considerable margin of reduction, especially in respect of the latter category, to be placed to the credit of surgical intervention.

On comparing the rates shown in this table with rates that had been computed for cancer of the breast and cancer of the female genital organs for the female population of 35 years and over of the ten original registration states, it was noted that the rates given in Howard's table were abnormally low, only from about one half to one third of the rates found in this population for the registration states of 1900 (e. g., the death rate from cancer of the breast in the female population of 35 years and over of the ten original registration states was 46.4 per hundred thousand in 1910 and 54.0 per hundred thousand in 1920, as compared with the respective rates in Howard's table of 24 and 18). Evidently there was some error in the population figures for females 40 years and over for the city of Baltimore, by which these rates were computed.

The U. S. Census Reports give the following figures for the female population 40 years and over for that city:

Year	Female Population, 40 Years and Over
1880..	40,936
1890..	59,278
1900..	66,811
1910..	80,079
1920..	106,902

Applying these figures to the number of deaths from cancer of the breast and of the uterus, as given for Baltimore by Howard, the following table is obtained:

Year	Female Population 40 Years and Over	Total		Breast		Uterus	
		Deaths	Rate	Deaths	Rate	Deaths	Rate
1800..........	40,936	94	230	37	90	57	139
1890..........	59,278	158	267	50	84	108	182
1900..........	66,811	161	241	52	78	109	163
1910..........	80,079	199	249	74	92	125	156
1920..........	106,902	205	192	80	75	125	117

This recomputation, using enumerated figures, gives much higher rates. In fact, some of them are now apparently too high. For instance, the combined rate for Baltimore in 1910 for cancer of the breast and of the uterus is over twice as high as the computed rate (116.4) for the female population 35 years and over of the ten original registration states.

The following table, which shows the actual deaths in the city of Baltimore for the period 1900-1920, was compiled from the deaths from cancer of the breast and cancer of the female genital organs that were furnished me by Dr. W. H. Davis, chief statistician of the Division of Vital Statistics, Bureau of the Census. The rates were computed for the female population 40 years and over from the population figures given for the city of Baltimore by specific age groups in the reports of the Cenus Bureau, 1900, 1910 and 1920, the intercensal years being estimated by the usual arithmetical method.

Deaths in City of Baltimore, 1900-1920

	Cancer of Breast		Cancer of Female Genital Organs		Total	
Year	Deaths	Rate	Deaths	Rate	Deaths	Rate
1900............	26	39	70	105	96	144
1901............	45	66	69	101	114	167
1902............	45	65	72	105	117	168
1903............	31	44	73	103	104	147
1904............	52	72	74	103	126	175
1905............	43	59	73	99	116	158
1906............	51	68	78	104	129	172
1907............	41	54	91	119	132	173
1908............	44	57	81	105	125	161
1909............	44	56	81	103	125	159
1910............	54	67	95	119	149	186
1911............	52	63	74	89	126	152
1912............	65	76	99	116	164	192
1913............	50	57	104	118	154	175
1914............	65	72	104	114	169	186
1915............	55	59	97	104	152	163
1916............	74	77	105	109	179	186
1917............	42	43	97	98	139	140
1918............	65	64	101	99	166	163
1919............	87	83	122	117	209	200
1920............	65	61	125	117	190	178

On comparing the years 1900, 1910, 1920 as was done by Dr. Howard, using the average of the first two and the last two years, and of the three years, 1909, 1910, 1911,

	Cancer of Breast		Cancer of Female Genital Organs		Total	
Year	Breast	Rate	Deaths	Rate	Deaths	Rate
1900............	35	52	69	102	105	155
1910............	50	62	83	103	133	165
1920............	75	72	123	117	199	189

it is evident that there has been a considerable increase in the death rate from cancer of the breast amounting to 38 per cent., and from cancer of the female genital organs, 15 per cent. The combined rate of increase for these two forms of cancer is 22 per cent. This is, of course, by no means comparable with the much greater percentage increase that has been registered in the mortality figures of the ten original registration states. The situation, however, is far different from the pronounced decline of nearly 33 per cent. in the combined death rate for cancer of the breast and cancer of the female genital organs shown in Dr. Howard's table.

Evidently this explanation clears up the apparent discrepancy between Dr. Howard's conclusions and my own.

J. W. Schereschewsky, M.D., Boston.
Surgeon, in Charge, Field Investigations
of Cancer, U. S. Public Health Service.

"DIATHERMY IN CALCIFIED SUBDELTOID BURSITIS"

To the Editor:—Arthur L. Fisher (The Journal, October 24, p. 1324), San Francisco, takes good exception to the article on "Action of Diathermy in Calcified Subdeltoid Bursitis," by Dr. Joseph F. Harris (The Journal, October 10, p. 1134). In that article Dr. Harris reports only one case. Dr. Fisher also cites the well known occurrence that for some unknown reason the calcification of bursae sometimes disappears without treatment. This could hardly be the situation with Dr. Harris' case, the symptoms of which condition existed seven years.

I have had a few cases of this condition to treat in which diathermy plus static brush discharge has been used, and at the meeting of the American Academy of Physiotherapy in New York during September, 1923, eleven such cases were reported. All the roentgenograms and their diagnoses, both before and after treatment, were made outside my office, some of them having been made at the Presbyterian Hospital, New York. All these cases were of long standing, and it was felt that while diathermy and static electricity did not effect a "cure," they certainly helped awaken a reaction in the body which promoted the absorption of the calcium and assisted the patient in recovering from the condition himself. Physiotherapy in all its branches is very rarely a curative method, but it does seem to convert an inadequate reaction on the part of the individual into one that is adequate to overcome the pathologic condition.

Norman E. Titus, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ROENTGEN RAYS AND STERILITY

To the Editor:—Are there any facts to substantiate the belief that roentgenologists are liable to sterility? *Are there any reliable reports* of sterility occurring in roentgenologists in this country and can you give me the references? What procedure should be adopted to determine sterility in the male, if it is suspected? What are the characteristics of the spermatic fluid in cases of roentgen-ray sterility?

M.D., Minneapolis.

Answer.—The general subject of sterility induced by roentgen rays has been dealt with in The Journal from time to time:

Roentgen Rays and Sterility, Current Comment, The Journal, Nov. 11, 1922, p. 1692.
DeVilbiss, Lydia Allen: Roentgen Rays and Sterility, The Journal, Dec. 23, 1922, p. 2184.
Roentgen-Ray Sterilization, Queries and Minor Notes, The Journal, Oct. 3, 1925, p. 1082.

In most cases the sterilization is only temporary. The time of recuperation depends on the intensity of the treatment and on the individual constitution. Neither roentgen-ray nor operative sterilization necessarily affects the libido. There is no specific treatment for roentgen-ray sterility in the male. Absolute removal from the influence of roentgen rays and general hygienic measures are essential.

Furthermore, full discussion of the phases of the subject that interest our correspondent can be found by consulting the book by Sinclair Tousey, "Medical Electricity, Roentgen Rays and Radium," Edition 3, 1921, and by following out the references he gives. However, the following quotation may be of interest in answer to the four questions:

> "Repeated mild exposures of the ovary or testis are quite generally regarded as productive of sterility. In the case of x-ray operators, the loss of the power of motion in the spermatozoa, and in some cases absence of the spermatozoa, has been demonstrated a great many times by the microscope. The fact was first published by Tilden Brown and A. T. Osgood of New York. This is not accompanied by any sexual impotence, and it is doubtless not permanent, but a condition which disappears after the exposures have been discontinued or protection by a proper apron or shield has been adopted. This necrospermia may develop in any one who spends much time in an x-ray room where no precautions are taken to limit the rays to some one particular direction. . . . The author knows of cases in which physicians working much with the x-ray without adequate protection have been found to have complete necrospermia and apparent azoospermia, and in whom a vacation, and the subsequent use of a heavy apron of rubber loaded with baryta, and an efficient shield around the x-ray tube, have been followed by the reappearance of living spermatozoa, and the men have had children."

NEW AND OLD HAINES' TEST

To the Editor:—Is there a table by which a person using a certain number of drops of urine to a given amount of Haines' solution can tell approximately the percentage of sugar?

E. L., M.D., Rockford, Ill.

To the Editor:—What are the directions for the old and new Haines' solutions for testing urine for presence of sugar? How does the new solution differ from the old?

H. E. B., M.D., Ohio.

Answer.—Neither Haines' solution nor Haines' solution modified is adaptable for approximate determinations of sugar by the drop method. Furthermore, the size of drops from different types of delivery tubes varies greatly in amount so that it is much better to employ metric measurement (cubic centimeters) if quantitative data are desired. The directions for the Haines' solution modified (which is a *qualitative* test) are: "Heat about 5 c.c. of the copper solution to boiling in a test tube, remove from the flame, and hold at an angle of 30 to 40 degrees. To this add, by means of a medicine dropper, 10 to 20 drops of the urine (freed from phosphates) in such a manner that a distinct zone of contact is formed between the copper solution and the urine. The tube is then placed in the upright position and the reaction noted. If sugar is present in quantities exceeding 0.1 per cent., a brick-red or yellowish ring will immediately appear at the junction of the two liquids. If the amount of sugar be less than 0.1 per cent., the ring will appear in from a few seconds to slightly less than a minute, the smaller quantities showing slower reactions with a tendency to a more yellowish color of the ring. In urines containing no sugar, no ring of any kind will be noted at the zone of contact" (Haines, W. S.; Pond, G. P., and Webster, R. W.: Improved Test for Detection of Glucoses, Especially in Urine, The Journal, Jan. 31, 1920, p. 301). It will be noticed that the directions preclude the addition "drop by drop," as thereby the two liquids would mix; also the relative degree of pathologic sugar is indicated by the time and color of the ring, and not by the amount of urine employed. It is important that phosphates be removed from the urine in order to avoid wrong interpretations. The A. M. A. Chemical Laboratory has seen instances in which a physician, using this test, reported sugar present when in reality it was absent, owing to not removing the phosphates; the resulting phosphate precipitate was misinterpreted as a positive test for sugar.

In the original Haines' test (qualitative) the technic is different, particularly in that the urine and solution are mixed, then heated and only 6 drops of suspected urine is employed. The directions are: "Four or five c.c. of this solution are placed in a test-tube and gently boiled. Six drops of the suspected urine are added and the upper portion of the mixture brought to a boil and immediately removed from the flame. If sugar be present an abundant yellow or yellowish-red precipitate is thrown down; if no such precipitate occurs sugar is absent. The precautions to be observed in using this test are never to add at the outside more than 10 drops of urine and not to boil the mixture for more than one or two seconds after the addition of urine" (Webster: Diagnostic Methods, Philadelphia, P. Blakiston's Son & Co., 1923, p. 323).

The determination of the sugar quantitatively by means of a pipet or buret is not difficult and much more satisfactory.

The original Haines' solution, which is a modification of Trommer's test, consists of:

Copper sulphate	12 gm.
Sodium hydroxid	32 gm.
Glycerin	90 c c.
Water......to make	1,000 c c.

The composition of the modified Haines' solution is:

Copper sulphate	5 gm.
Glycerin	250 c c.
Sodium hydroxid	14 3 gm.
Water......to make	1,000 c c.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 10 11. Sec, Reg. Bd, Dr. J. W. Walker, Fayetteville.

Connecticut: New Haven, Nov. 10 Sec, Reg. Bd., Dr. Robert L. Rowley, 79 Elm St, Hartford, Sec, Homeo Bd, Dr. Edwin C. M. Hall, 82 Grand Ave, New Haven.

Delaware· Wilmington, Dec. 8 9 10. Pres. Med. Coun., Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

Maine: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, 192 State St, Portland.

Maryland: Baltimore, Dec. 8 11. Sec, Reg. Bd, Dr. Henry M. Fitzhugh, 1211 Cathedral St, Baltimore, Sec, Homeo. Bd, Dr. J. S. Garrison, 517 Old Orchard Rd, Baltimore.

Massachusetts· Boston, Nov. 10 12. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

North Carolina: Raleigh, Nov. 25 (Endorsement of Credentials only). Sec, Dr. Kemp P. B. Bonner, Morehead City.

Ohio: Columbus, Dec 2-4. Sec, Dr. H. M. Platter, Hartman Hotel Bldg, Columbus.

Philippine Islands: Manila, Nov. 10. Sec., Dr. Jose V. Gloria, 686 Rizal Ave, Manila.

South Carolina: Columbia, Nov. 10 Dr. A. Earle Boozer, 505 Saluda Ave, Columbia.

Texas· Dallas, Nov. 17-19. Sec, Dr. T. J. Crowe, 918 919 Mercantile Bank Bldg, Dallas.

Virginia: Richmond, Dec 8-11. Sec, Dr. J. W. Preston, 720 Shenandoah Life Bldg, Roanoke.

Mississippi June Examination

Dr. F. J. Underwood, secretary of the Mississippi Board of Health, reports the written examination held at Jackson, June 23-24, 1925. The examination covered 12 subjects, and included 96 questions. An average of 75 per cent. was required to pass. Twenty-eight candidates, including two undergraduates, were examined, all of whom passed. Thirteen candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad	Per Cent.
Emory University School of Medicine	(1925)	84
Northwestern University Medical School	(1925)	82.2, 88 6
Tulane University of Louisiana School of Medicine	(1920)	92 5,
(1925) 82.7, 86 6, 87, 88 4, 88 8, 90, 92		
St. Louis University School of Medicine.	(1925)	84 5
Univerity of Pennsylvania School of Medicine	(1919)	84.3,
87, 88 2, 90.3, 92, (1925) 82.4		
Meharry Medical College	(1922)	84.3
University of Tennessee College of Medicine	(1925)	83.3, 86 7, 87
Vanderbilt University School of Medicine	(1925)	87.5
University of Virginia Department of Medicine	(1925)	80, 83 5, 92
Undergraduates		75.4 78 2

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas Medical Department.	(1916)	Louisiana
Emory University School of Medicine	(1922)	Georgia
Medical College of Louisiana	(1898)	Louisiana
Tulane University of Louisiana School of Medicine	(1921)	Alabama
(1923) Louisiana		
St Louis College of Physicians and Surgeons	(1907)	Illinois
Meharry Medical College	(1913), (1914)	Tennessee
Memphis Hospital Medical College	(1899), (1905)	Arkansas
(1912) Tennessee		
University of Tennessee College of Medicine	(1921)	Tennessee
University of Virginia Department of Medicine	(1924)	Virginia

Oklahoma June Examination

Dr. J. M. Byrum, secretary of the Oklahoma Board of Medical Examiners, reports the written examination, held at Oklahoma City, June 16-17, 1925 The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Thirty-three candidates took the examination and all of them passed. Eleven candidates were licensed by reciprocity, and two were granted reregistration certificates. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Northwestern University Medical School	(1924)	89
University of Louisville School of Medicine	(1924)	90
Washington University School of Medicine	(1924)	85
Creighton Medical College	(1923)	87
University of Oklahoma School of Medicine	(1924) 84, (1925)	81,
82, 82, 83, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 86, 87, 87, 87, 87, 87, 88, 88, 88, 89, 89, 90, 90		
University of Manitoba Faculty of Medicine	(1923)	88

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville School of Medicine	(1920)	Texas
St. Louis University School of Medicine	(1924)	Missouri
University Medical College of Kansas City	(1906)	Kansas
Washington University School of Medicine	(1924)	Missouri
Memphis Hospital Medical College	(1912)	Arkansas
University of the South Medical Department	[illegible]	Kansas
Vanderbilt University School [illegible]	[illegible]	Tennessee
Baylor University College of [illegible]	[illegible]	Texas
University of Texas Departmen[illegible]	[illegible]	Texas
University of Virginia Depart[illegible]	[illegible]	Mississippi

Book Notices

The Medical Follies. An Analysis of the Foibles of Some Healing Cults, Including Osteopathy, Homeopathy, Chiropractic, and the Electronic Reactions of Abrams, with Essays on the Antivivisectionists, Health Legislation, Physical Culture, Birth Control and Rejuvenation. By Morris Fishbein, M.D., Editor of the Journal of the American Medical Association. Cloth. Price, $2. Pp. 223. New York: Boni and Liveright, 1925.

This volume by the editor of The Journal, is a collection of articles published during the last two years in such periodicals as the *American Mercury,* the *Haldeman-Julius Monthly, Hygeia* and The Journal, together with some essays not previously in print. The essays are arranged in chronological order, beginning with the tractors of Elisha Perkins, passing through homeopathy, osteopathy and chiropractic to the Abrams fad, and including also material on health legislation, birth control, animal experimentation, physical culture and the medicine of the press. The volume has been greeted by literary critics with rather general approval. The recognition accorded to the book is an indication of the fact that American journalism today looks to the American Medical Association for authoritative statements in matters of scientific medicine and public health. As an indication, we include statements from current reviews.

The New York *Times* said, in part:

> The rise and fall of the various fads and fancies of medicine as evolved by advocates of preposterous and fallacious theories, some of which were conceived for the purpose of deliberate fraud and others in the uncurbed delusions of fanatics, and all against the "peace and dignity" and the health of the public, are explained with a clarity and convincing logic that leaves little room for argument. . .
>
> It may as well be said at once that in this volume Dr. Fishbein has done a great service to the cause of scientific medicine.

The Brooklyn *Eagle* said:

> The guardian text of the good doctor is that health systems come and go, but the medical doctors go on forever
>
> The practice of medicine made such rapid strides during the war that the public is willing to accept almost anything that appears to have a medical label Dr. Fishbein realizes this. His book is a valuable aid in separating the real from the fake . . . I know of no more readable book of nonfiction

The Chicago *Post* said, in part:

> When the antimedical crowd criticize the medical profession as a trust, they omit one important point; and that is that the medical profession, if it be a trust, is an open one Nobody can be kept out who wants to get in All he has to do is to prove that he has studied the human body, knows therapy, and has a proper educational background The reviewer is a believer in individualism and freedom But the less "medical freedom," in the sense in which the propagandists for it use that phrase, we have, the safer he will feel for himself, his children and his friends.

The New York *Post* said:

> Dr Fishbein writes amusingly and readably; he swings a vigorous club, and when he comes to such absurdities as "The Big Muscle Boys" he scores with every swing Just what good a book of this sort will do is open to question· There will be cults and followers for them as long as mankind lasts But it is interesting reading, and Dr Fishbein has done his part admirably.

The New York *Sun* said:

> In "The Medical Follies" (Boni & Liveright, $2) he sets fire to the shirts of charlatans with tremendous relish and gusto
>
> Everything about his style is in his favor. He is so plain that no intelligent layman will have any difficulty in following him He is so vigorous that the reader is swept along by the flood. Finally, though a book like this is a tremendous public service, it is quite obvious that with Dr. Fishbein it was not primarily written from any solemn sense of duty. Against the frauds who prey upon the public he does not use the weapon of righteous indignation, but the weapon of derision One feels that he waves his battle ax around his head not because it is a service to the state, but because there is a glorious zest in crushing the skulls of quacks This department leaves it to specialists to say whether every statement he makes may be indorsed; but to watch him at his work is as exhilarating as watching a bull fight

The Richmond *News Leader* said:

> The broom is at its most effective point in the essays of "The Medical Follies." The quacks who operate on the shady borderline of the medical profession, taking millions and injuring the cause of authentic science, have never before had to deal with so devastating an offensive

However, not all of the response has been so favorable. One O. O. M'Intyre, conducting a syndicated column, remarks:

> "The Medical Follies," by a Dr. Morris Fishbein, is a stupidly written and unnecessary book It is an old school practitioner sneering at the new schools and its unconscious venom reveals its obvious propaganda As one reviewer notes "Let Dr Fishbein cure whooping cough, then he may impress us more with the surety of his medical views."

An osteopath, W. E. Farbstein, replied to favorable criticism in the *Haldeman-Julius Weekly*, as follows:

> Why didn't Fishbein, if he were an honest man, publish a chapter on Medicine and Surgery Full of Quackery Today? He has criticised every form of therapy but his own, allopathy, which deserve criticism the most.
>
> Medicine and surgery, as practiced today, is 90 per cent. bunk. Cabot, America's premier diagnostician, of the Harvard Medical College, a few years ago stated that 50 per cent of his diagnoses were incorrect, when checked up by postmortem
>
> Osler, the greatest of modern times, was almost a therapeutic nihilist. He said there were less than six drugs of value in the whole Pharmacopeia, also that 80 per cent or more of sick folks would get well just as quick or quicker without any medical treatment.

In the meantime the publisher has made three printings of the volume and it seems to be accomplishing its purpose.

CLINIQUE MÉDICALE DES ENFANTS. Affections de l'appareil circulatoire. Par P Nobécourt, Professeur de clinique medicale des enfants a la Faculté de médecine de Paris Paper. Price, 25 francs. Pp 371, with 122 illustrations. Paris: Masson et Cie, 1925

No greater service can be rendered by a clinician of large experience than to record, after many years of labor among the sick, his observations and deductions This Nobecourt has done in an admirable way in this monograph. He considers the various cardiac affections of infancy and childhood, and each chapter is devoted to a particular phase of the subject. He introduces his clinical treatise by citing the history of several patients, and proceeds with an analytic discussion of the patients and the subject in general. His reference to his own vast experience, as well as to the literature in general, makes the book of added value. There are charts and orthodiagrams. The modern methods of heart diagnosis are presented and stressed, and the suggestions for treatment are rational and valuable. The book will be of great interest to pediatricians and those who treat the cardiac diseases of young life. Not least, the observations and the clinical reflections of a keen and industrious clinician are preserved in the form of a permanent and very readable record.

INTERNAL SECRETION IN HEALTH AND DISEASE By Capt. Y. M. Bose, M D. Cloth. Price, Rs 12 net. Pp 550, with 43 illustrations. Calcutta: Butterworth & Co (India), Ltd, 1925.

This is a curious and disappointing volume on endocrinology. In the preface the author makes the following candid confession: "The writer does not claim any original research and study on the subject, but has tried to put together the important connecting links of the various problems of internal secretion so as to make the subject clearly understood by any busy practitioner or a student." Why a physician who has made no specific research or study on the difficult subject of the endocrines in health and disease should proceed to write a volume on the subject for the information and instruction of students and physicians is certainly not clear. The author says further, "As far as possible all controversal discussions have been avoided." That would lead one to infer that all the matters set forth in the book are accepted, proved and undisputed facts, when, as a matter of fact, the book is full of errors, misleading statements and unproved assertions. The author gives evidence of quite extensive reading in the field of endocrinology; occasionally he shows discrimination and judgment, but more often purile credulity. The book contains the conventional chapters on endocrines and endocrine diseases. There is a chapter headed "Glossary of Endocrine Diseases and their Treatment" from which we quote:

> *Asphyxia* is relieved promptly by adrenalin with saline solution intravenously.
>
> *Cataract* is considered to be arrested by thyroid with adrenal gland and iodides
>
> *Bronchitis* (chronic) responds to thyroid with creosote preparations, in addition to other remedial measures, especially suitable vaccine.
>
> *Eczema* is often the result of defective protein catabolism with correlated endocrine dysfunction and auto intoxication. A week's strict vegetable diet should be followed by thyroid and pituitary.
>
> *Fractures* get easily united when calcium lactate and thymus are given with meals, and strychnine, thyroid and pituitary after meals.
>
> *Mania* is due to hyperendocrin condition.
>
> *Neurasthenia* is relieved by strychnine, thyroid and pituitary.

On page 55 we are told that the "thymus controls the infancy when by its inhibitory action on the other internal secretions the baby is allowed to grow in bulk without much differentiation. . . . The pineal rules the childhood. . . . During the mature period the three important glands, pituitary, thyroid and adrenals, between themselves control the personality, both bodily and mentally, of the man. Senility is due to general endocrin deficiency." On page 58 the author states under the heading Therapeutic Value of Hormones: "It cannot be said that much has been accomplished with organotherapy except in a few instances such as the use of thyroid in myxedema. It is unfortunately common for a present day clinician to take a chance-hit with the much boomed organotherapeutic shot-gun." Then he proceeds to quote with approval Cushing's caustic remarks on the follies of present day organotherapy. And yet in subsequent parts of the book the author completely abandons this attitude and says (p. 481): "The administration of endocrin products by mouth is considered to be practical, for most of these extracts are effective in this way." On page 470 the author states that the administration of the extract of an organ specifically stimulates this organ in the patient, and that this law appears to be general. In other words, he accepts the hypothesis of homostimulation as a demonstrated law. The book cannot be recommended for the information and guidance of either students or practitioners. It is more misleading than informational.

LES SYNDROMES RESPIRATOIRES. Par Émile Sergent, Professeur à la Faculte de médecine de Paris Deuxième fascicule Bibliothèque des grands syndromes Directeur H. Roger, Doyen de la Faculté de médecine de Paris Paper. Price, 20 francs. Pp 489, with 98 illustrations. Paris Gaston Doin, 1925

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Internists, teachers of physical education, and investigators will welcome this concise, accurate and conservative monograph. The author has attempted to bring together the chief facts which we now possess concerning the normal vital capacity and its variations in health and in disease, making these data available without the use of any mathematical calculations or an understanding of the mathematical formulas from which the tables are derived. The six chapters deal in turn with the history of the study of vital capacity; factors other than disease which influence the normal capacity; the influence of disease on the vital capacity; some limitations of the vital capacity as a clinical test for disease or as a test for physical fitness; measurements and instruments used in the vital capacity test, and, finally, normal vital capacity standards. The presentation is clear, concise and conservative. No one will take issue with the following conclusion (p. 81):

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Medicolegal

Phosphorus Poisoning an Accidental Injury

(Victory Sparkler & Specialty Co. v. Francks (Md.), 128 Atl. R. 635)

The Court of Appeals of Maryland, in reversing a judgment for $22,500 recovered against the defendant company for the benefit of a young girl who had contracted phosphorus poisoning while employed in the making of fireworks for the company, says that the lower court held the disease of phosphorus poisoning to be an injury outside the purview of the workmen's compensation act of Maryland; and that the employer was liable, for this injury, at common law. But the court of appeals holds that the girl had sustained an injury arising out of and in the course of an extrahazardous occupation, and that her sole remedy was under the terms of the workmen's compensation act.

The most that was warranted to be inferred from the allegations of fact in the declaration was that the phosphorus poisoning alleged was the gradual result of the negligence of the employer. As this negligence was a breach of duty to her, it was not to be foreseen or expected by the worker as something which would occur in the course of her employment. The fact that she continued at her place of labor, in the doing of her common and regular task, made it clear that the phosphorus poisoning happened without her design or expectation, and so her injury was accidental. It was by chance that the employer did not use due care, and by chance that the vapor of phosphorus was where its noxious foreign particles could be inhaled by the girl. It was by chance that the inspired air carried these particles into her system, sickening her, and causing a necrosis of the jaw after fortuitously finding a lesion. The injury thus inflicted on her body was accidental by every test of the word, and its accidental nature was not lost by calling the consequential results a disease.

Nor could the fundamentally accidental nature of the injury be altered by the consideration that the infection was gradual throughout an indefinite period, as this simply implied a slow development of the malady, or that, instead of a single accidental injury, there was a succession or series of accidental injuries culminating in the same consequential results. The introduction of phosphorus into the human body is none the less accidental, if through the medium of a pimple point, an unsound tooth, a scratch, a lesion, or of ingestion or in breathing. Nor is the accidental nature of this introduction lessened by the length of time intervening between the reception of the poisonous substance and the first manifestation of the resultant poisoning, as its progress may be slow, moderate or rapid, according to the form it assumes. The infection is the accidental injury, and whatever follows in causal connection are but consequences, which measure the duration and effect of the injury. The phosphorus poisoning of the employee as described in the declaration was therefore not a disease incident to the industry, but was an injury in causal connection with her employment, within the meaning of the act defining injury to "mean only accidental injuries arising out of and in the course of employment and such disease or infection as may naturally result therefrom."

Relatives of Patient as Accomplices of Practitioner

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The District Court of Appeal of California, Second District, Division 1, says that the defendant contended that the several members of the family of the patient, having prior knowledge of the fact that the defendant was not a licensed medical practitioner within the state, and they with such knowledge having cooperated with him in the treatment of the patient, these facts brought them within the rule that one who in any manner, knowingly and with criminal intent, aids and abets another in the commission of a criminal act is as guilty of the offense as is the person who actually commits it, and consequently that the members of the family who, with such knowledge of the facts, assisted the defendant in the treatment of the patient were accomplices of the defendant, and

The New York *Sun* said:

> In "The Medical Follies" (Boni & Liveright, $2) he sets fire to the shirts of charlatans with tremendous relish and gusto
>
> Everything about his style is in his favor He is so plain that no intelligent layman will have any difficulty in following him He is so vigorous that the reader is swept along by the flood Finally, though a book like this is a tremendous public service, it is quite obvious that with Dr. Fishbein it was not primarily written from any solemn sense of duty. Against the frauds who prey upon the public he does not use the weapon of righteous indignation, but the weapon of derision One feels that he waves his battle ax around his head not because it is a service to the state, but because there is a glorious zest in crushing the skulls of quacks This department leaves it to specialists to say whether every statement he makes may be indorsed, but to watch him at his work is as exhilarating as watching a bull fight

The Richmond *News Leader* said:

> The broom is at its most effective point in the essays of "The Medical Follies" The quacks who operate on the shady borderline of the medical profession, taking millions and injuring the cause of authentic science, have never before had to deal with so devastating an offensive

However, not all of the response has been so favorable. One O. O M'Intyre, conducting a syndicated column, remarks:

> "The Medical Follies," by a Dr. Morris Fishbein, is a stupidly written and unnecessary book It is an old school practitioner sneering at the new schools and its unconscious venom reveals its obvious propaganda As one reviewer notes "Let Dr Fishbein cure whooping cough, then he may impress us more with the surety of his medical views"

An osteopath, W E Farbstein, replied to favorable criticism in the *Haldeman-Julius Weekly*, as follows·

> Why didn't Fishbein, if he were an honest man, publish a chapter on Medicine and Surgery Full of Quackery Today? He has criticised every form of therapy but his own, allopathy, which deserve criticism the most
>
> Medicine and surgery, as practiced today, is 90 per cent bunk Cabot, America's premier diagnostician, of the Harvard Medical College, a few years ago stated that 50 per cent of his diagnoses were incorrect, when checked up by postmortem
>
> Osler, the greatest of modern times, was almost a therapeutic nihilist He said there were less than six drugs of value in the whole Pharmacopeia, also that 80 per cent or more of sick folks would get well just as quick or quicker without any medical treatment.

In the meantime the publisher has made three printings of the volume and it seems to be accomplishing its purpose.

Clinique medicale des enfants Affections de l'appareil circulatoire. Par P Nobecourt, Professeur de clinique medicale des enfants a la Faculté de medecine de Paris Paper. Price, 25 francs. Pp 371, with 122 illustrations Paris. Masson et Cie, 1925

No greater service can be rendered by a clinician of large experience than to record, after many years of labor among the sick, his observations and deductions This Nobecourt has done in an admirable way in this monograph He considers the various cardiac affections of infancy and childhood, and each chapter is devoted to a particular phase of the subject. He introduces his clinical treatise by citing the history of several patients, and proceeds with an analytic discussion of the patients and the subject in general His reference to his own vast experience, as well as to the literature in general, makes the book of added value. There are charts and orthodiagrams. The modern methods of heart diagnosis are presented and stressed, and the suggestions for treatment are rational and valuable. The book will be of great interest to pediatricians and those who treat the cardiac diseases of young life Not least, the observations and the clinical reflections of a keen and industrious clinician are preserved in the form of a permanent and very readable record.

Internal Secretion in Health and Disease By Capt Y. M. Bose, M D Cloth Price, Rs 12 net Pp 550, with 43 illustrations Calcutta: Butterworth & Co (India), Ltd, 1925

This is a curious and disappointing volume on endocrinology. In the preface the author makes the following candid confession: "The writer does not claim any original research and study on the subject, but has tried to put together the important connecting links of the various problems of internal secretion so as to make the subject clearly understood by any busy practitioner or a student." Why a physician who has made no specific research or study on the difficult subject of the endocrines in health and disease should proceed to write a volume on the subject for the information and instruction of students and physicians is certainly not clear. The author says further, "As far as possible all controversal discussions have been avoided" That would lead one to infer that all the matters set forth in the book are accepted, proved and undisputed facts, when, as a matter of fact, the book is full of errors, misleading statements and unproved assertions. The author gives evidence of quite extensive reading in the field of endocrinology; occasionally he shows discrimination and judgment, but more often purile credulity. The book contains the conventional chapters on endocrines and endocrine diseases. There is a chapter headed "Glossary of Endocrine Diseases and their Treatment" from which we quote:

> *Asphyxia* is relieved promptly by adrenalin with saline solution intravenously
>
> *Cataract* is considered to be arrested by thyroid with adrenal gland and iodides
>
> *Bronchitis* (chronic) responds to thyroid with creosote preparations, in addition to other remedial measures, especially suitable vaccine
>
> *Eczema* is often the result of defective protein catabolism with correlated endocrine dysfunction and auto intoxication A week's strict vegetable diet should be followed by thyroid and pituitary.
>
> *Fractures* get easily united when calcium lactate and thymus are given with meals, and strychnine, thyroid and pituitary after meals
>
> *Mania* is due to hyperendocrin condition
>
> *Neurasthenia* is relieved by strychnine, thyroid and pituitary.

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It is apparent that if the members of the family of the patient in good faith believed that the defendant was a physician and licensed by the state board of medical examiners to act as such, their cooperation with him in treating the patient would not have been criminal. Their knowledge of his lack of statutory qualifications in the premises was prerequisite to any constructive criminal intent on their part. Assuming such actual knowledge by the members of the family, and constructive knowledge on their part that the law forbade any one to treat the sick without having a valid unrevoked certificate of license from the board of medical examiners, it would seem probable that they occupied a position not differing in the law from that occupied by any person not a member of the patient's family who assisted in such treatment. However, while evidence should have been admitted touching the complicity of several of the witnesses with the defendant in the commission of the offense, and in such event the jury properly instructed regarding such evidence, because of the fact that the remaining evidence in the case was so strong that in the absence of any contradictory evidence, without a violation of their oaths, the jury could not do otherwise than find the defendant guilty, his appeal in that regard must be considered as though such errors had not occurred. Moreover, whether or not he received any consideration in compensation for his services as a physician was of no consequence, so far as establishing the violation of the terms of the penal statute was concerned.

On a judgment of conviction being affirmed, the defendant petitioned to have the cause heard and determined by the Supreme Court of California. The latter court, in denying the petition, says that it neither approves nor disapproves the conclusion of the district court of appeal that under the circumstances outlined in the opinion the members of the patient's family would be accomplices, if they had knowledge of the fact that the defendant did not have a license to practice medicine. The supreme court does not deem it necessary to express an opinion on that question at this time.

Joint Liability of Surgeons in Sponge Case—Evidence

(Spears et al. v. McKinnon (Ark.), 270 S. W. R 524)

The Supreme Court of Arkansas says that the gist of the complaint was that after an operation for ectopic pregnancy, performed on plaintiff McKinnon at a hospital, the defendants, who were the operating surgeon and his assistant, left in the abdominal cavity a sponge or gauze which dropped into the culdesac, where it began to rot the tissue and membranes until it found its way to a point about 5 inches above the anus, where it sloughed into and out through the rectum nine months after the operation. The sufficiency of the evidence to sustain the verdict was challenged on several grounds, but, in giving the strongest probative force to the testimony of the plaintiff, all reasonable possibilities must be taken into account, and when that was done the evidence was sufficient to support the verdict in her favor.

None of the witnesses remembered having made a personal examination of the grade or size of the mesh of the gauze used in the operation, and while there was some difference between that which passed from the plaintiff and that generally used in the hospital, it might be that on the occasion of this operation the hospital had run out of the kind it generally used and procured and used the kind that passed from the plaintiff. From the circumstances in the case the jury might have so inferred. As the gauze passed out of an abscess which emitted a large quantity of pus, it could not be said, as a physical fact, that the blood stains would have remained on the gauze during its passage through rotting, sloughing tissue from the abdomen into the rectum. It was contended that the gauze would have traveled the route of least resistance, which would have been through the wall of the vagina instead of through the wall of the rectum; but, as the court interprets the testimony of the physicians, they all admitted that the route of the passage of the gauze from the abdomen to the rectum was a possible way but hardly a probable route. Before the judgment and verdict for the plaintiff could be set aside on this ground, the undisputed testimony would have to show that the route of elimination through the wall of the rectum was an impossible route.

This court cannot agree with the contention that because one of the defendants was assisting the other and was not instructed by the latter to search the abdomen for sponges after the operation, he was exempt from liability if gauzes were found in the abdomen. The record revealed that the assistant's part in the operation was to insert and withdraw the sponges. If through carelessness or negligence he failed to withdraw any of them, he could not escape liability on the ground that he was an assistant. Such a rule would have the effect of acquitting one of civil liability growing out of his own negligence.

Again, it was the contention of the defendants that no liability rested on them as physicians and surgeons on account of sponges or gauzes being left in the abdomen of the plaintiff, because the duty of counting them before and after the operation was imposed on the attendant nurse who was in the employ of the hospital where the operation was performed. In other words, that it was a rule or custom of the hospital and among physicians for the attendant nurse to ascertain by count whether any sponges or gauzes had been left in the body of the patient, which count entirely relieved operating surgeons from such responsibility, and consequently from liability growing out of a failure to remove sponges and gauze from the openings or cavities in the body. But there was no error in a refusal of the trial court to give requested instructions which expressed this idea. Nor was error committed in excluding testimony offered by the defendants tending to establish a rule or custom of the hospital or of physicians making the count by the attending nurse of sponges conclusive evidence that all of them used in the operation had been accounted for and that none of them had been left in the wound or body of the patient.

The jury found for the plaintiff the sum of $3,500 against each of the defendants. This action was against them jointly to recover damages against them as tort-feasors. There was only one operation and one damage. Both of the defendants participated in it and, according to the verdict, both were liable. Under the testimony they were liable as joint tort-feasors, if at all, and the verdict must be construed as a finding of joint and not several liability. The only way that this could be done was to construe the verdict as a joint finding against the defendants for $3,500, and the trial court should have so interpreted the verdict and rendered a joint judgment against the defendants for $3,500; and a judgment for $3,500, instead of $7,000, is here rendered against them.

Society Proceedings

COMING MEETINGS

American Pharmacological Society, Cleveland, Dec. 28-31. Dr. E. D Brown, University of Minnesota, Minneapolis, Minn, Secretary.
American Physiological Society, Cleveland, Dec 29-31. Dr. W. J. Meek, Science Hall, Madison, Wis, Secretary.
American Society of Biological Chemistry, Cleveland, Dec. 28-30. Dr. D W. Wilson, University of Pennsylvania School of Medicine, Philadelphia, Secretary
American Society for Experimental Pathology, Cleveland, Dec. 28-30 Dr. E B Krumbhaar, Philadelphia General Hospital, Philadelphia, Sec'y.
District of Columbia, Medical Society of, Washington, D. C, Dec. 2 Dr C. B Conklin, 500 Medical Science Bldg, Washington, D. C, Sec'y
Federation of American Societies for Experimental Biology, Cleveland, Dec 29-31. Dr. Walter J Meek, Science Hall, Madison, Wis, Sec'y
Philippine Islands Medical Association, Manila, Dec. 16-19. Dr. Isabelo Concepcion, College of Medicine and Surgery, Manila, Secretary
Porto Rico, Medical Association of, Coamo, Dec. 14-15. Dr. R. M. Suarez, Box 314, Santurce, Secretary.
Radiological Society of North America, Cleveland, Dec. 7-11. Dr. Robert J. May, St Luke's Hospital, Cleveland, Secretary.
Society of American Bacteriologists, Madison, Wis, Dec. 29-31. Dr. James M Sherman, Cornell University, Ithaca, N. Y., Secretary.
Southern Medical Association, Dallas, Texas, November 9-12 Mr. C P. Loranz, Empire Bldg, Birmingham, Ala, Secretary.
Southern Surgical Association, Louisville, Ky., Dec. 15-17. Dr. Hubert A. Royster, 423 LaFayette Street, Raleigh, N. C, Secretary.
Western Surgical Association, Wichita, Kan, Dec 18-19 Dr. Harry P. Ritchie, Lowry Building, St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

30: 453-602 (Oct.) 1925

*Comparison and Interpretation on Caloric Bases of Milk Mixtures Used in Infant Feeding. Grover F. Powers, New Haven, Conn.—p. 453.
*Ketosis Accompanying Infections in Children. K. H. Tallerman, London, England.—p. 476.
*Skin Temperatures in Normal Children. F. B. Talbot, A. J. Dalrymple and M. F. Hendry, Boston.—p. 483.
*Skin Temperature and Basal Metabolism During Fasting. F. B. Talbot, A. J. Dalrymple and M. F. Hendry, Boston.—p. 491.
*Blood Chemistry of New-Born in Health and in Inanition Fever. D. H. Sherman, G. W. Pucher, and H. R. Lohnes, Buffalo.—p. 496.
*Light and Antirachitic Factor. C. E. Bloch and F. Faber, Copenhagen, Denmark.—p. 504.
Chemical Composition of Spinal Fluid; Diagnostic Value. H. B. Wilcox, J. D. Lyttle and J. A. Hearn, New York.—p. 513.
*Gastric Digestion in New-Born Infants. C. Griswold and A. T. Shohl, New Haven, Conn.—p. 541.
Importance of Considering Body Mechanics of Children. L. P. Sutton, New York.—p. 550.

Caloric Bases of Milk Mixtures.—The constitution of a great number of the milk mixtures commonly used in infant feeding is expressed by Powers in terms of the percentage of each energy-producing nutrient in the total energy value of the food as fed. This method of food evaluation has been the means of extricating these heterogeneous mixtures from a maze of quantitative relationships which are metabolically meaningless, and has made them available for comparative study on a significant basis in terms of the standard unit of nutritional currency—the calory—and without regard to water content. In this simple way, a host of apparently dissimilar milk mixtures have lost an artificial individuality and have been classified in seven distinctive groups. Here individual differences may be studied where they actually exist, that is, in mineral content, chemical and biologic values of protein, carbohydrate and fat, degree of denaturization and water content. Powers says that it is a striking fact that the vast majority of successful milk mixtures used in infant feeding are unlike human milk, which stands apart from all other foods; indeed the popular mixtures are as unlike human milk as they are unlike unmodified cow's milk.

Ketosis Accompanying Infections in Children.—A study was carried out by Tallerman on a series of children presenting ketosis associated with infection. A derangement of carbohydrate metabolism, as evidenced by abnormal blood sugar curves, has been noted. In the majority of the cases, this appeared to be associated with hepatic inadequacy, as shown by the levulose tolerance test. It is probable that hepatic function is temporarily deranged as a result of the toxemia of certain infections, and ketosis results from a failure to utilize carbohydrates. Another possibility is that the abnormal blood sugar curves, especially the initial high values, are due in part to overaction of the sympathetic nervous system associated with fever. A low food intake must be mentioned as a probable contributory factor.

Skin Temperatures in Normal Children.—Skin temperature readings in five normal children were made by Talbot et al. with the thermo-electric couple, so far as possible under uniform conditions. It was found that the temperature of the skin under clothing varied, that of the trunk being higher than the extremities and exposed parts of the body. The same group of children were exposed to room temperature, and when the clothing was removed, there was an immediate fall in the skin temperature. In some instances the skin temperature continued to fall definitely during a half hour without any change in rectal temperature, while in others there was very little, if any, fall after fifteen minutes. This seems to indicate that the skin as an organ has some power of regulating the rate in which the heat is transported to it, and is able to prevent heat loss just as it is able to accelerate heat loss by perspiration.

Skin Temperatures and Basal Metabolism During Fasting.—Talbot et al. found that during fasting, the rate of heat production in the body, as measured in the child cot chamber, usually diminishes. It fell more in a fourteen day fast than in an eight day fast. The skin temperature became lower during the fast, and, in general, presented a curve similar to that of the basal metabolism; the longer the fast the greater the fall in the skin temperature of these patients. The pulse rate was usually lowered, and the blood pressure sometimes definitely lowered. This is associated with a tendency for the skin to become pale or slightly cyanotic if not well covered with clothing or blankets.

Blood Chemistry of New-Born.—Comparative data on the blood chemistry of new-born infants (twenty-three cases) on the first, third and fifth days are presented by Sherman et al. In so-called inanition fever there is a marked increase of blood urea nitrogen and amino-acids. There is marked acidosis, as shown by the marked decrease in carbon dioxid combining power. There is no decrease in the percentage water content of the blood, as measured by the total solids. These so-called inanition fevers apparently are not due to increased salt concentration of the blood.

Light as an Antirachitic Factor.—From the investigations made by Bloch and Faber and considerations thereon it appears that light and particularly ultraviolet rays have a stimulating effect on the organism, which chiefly benefits those functions that are depressed. The curative action of light on rickets and tetany can be explained by such a stimulating effect. It is certain, however, that cod liver oil has the same healing action on rickets and tetany as light has, although the former, in the quantities that can be given to children, acts more slowly and less surely than light. As this effect is not due to the vitamin A substance, there must be a stimulating factor in cod liver oil similar to that in ultraviolet light, in addition to the vitamin A substance. This proves that the nonspecific stimulating factor must be the ultraviolet rays. Evidently the hypothetic antirachitic vitamin does not exist.

Gastric Digestion in New-Born Infants.—Griswold and Shohl assert that the gastric contents of unfed new-born infants consist of gastric juice which contains free hydrochloric acid. The average p_H is 2.6. The buffer value is 9.4 c.c. The volume is 4.5 c.c. At 5 days of age, test meals removed in one hour show an average acidity of p_H 2.5, a buffer value of from 10 to 12 c.c. and a volume of 6.5 c.c. Similar values were obtained in the tenth day. The capacity for gastric digestion is greater in new-born infants than later in infancy. Gastric digestion of 50 c.c. of partly skimmed cow's milk is practically complete in one hour. It would seem logical to feed new-born infants a more concentrated and a more alkaline food.

American Journal of Hygiene, Baltimore

5: 559-708 (Sept.) 1925

*Penetration of Fruits and Vegetables by Bacteria and Other Particulate Matter, and Resistance of Bacteria, Protozoan Cysts and Helminth Ova to Common Disinfection Methods. R. G. Mills, C. L. Bartlett and J. F. Kessel, Peking, China.—p. 559.
Relation of Insect Herpetomonad and Crithidial Flagellates to Leishmaniasis. I. Inoculation of Mammals with Insect Flagellates. J. J. Drbohlav, Boston.—p. 580.
Id. II. Specificity of Various Insect Flagellates for Certain Hosts, as Indicated by Cross Infection Experiments. J. J. Drbohlav, Boston.—p. 599.
Id. III. Cultivation Requirements. J. J. Drbohlav, Boston.—p. 611.
Multiplication of Yeast in Solutions of Purified Nutrients. M. B. McDonald, Baltimore.—p. 622.
Measles in Providence, R. I., 1858-1923. C. V. Chapin, Providence, R. I.—p. 635.
*Hemolytic Proteus Bacillus. B. S. Kline, Cleveland.—p. 656.
*Proteus Hemotoxin. E. E. Ecker and *H. H. Brittingham, Cleveland*.—p. 662.
*Epidemic of Scarlet Fever Spread by Ice Cream. G. H. Ramsey, Lansing, Mich.—p. 669.
Pyorubrin, Red Water-Soluble Pigment Characteristic of B. Pyocyaneus. P. D. Meader, G. H. Robinson and V. Leonard, Baltimore.—p. 682.

Penetration of Fruits and Vegetables by Bacteria.—The experiments described by Mills, Bartlett and Kessel bear directly on the question as to whether any uncooked vegetable or fruit is safe to eat, and under what conditions. It is stated that normal uninjured fruits and vegetables do not contain living bacteria within their tissues. Finely divided particulate matter, such as carbon, corresponding in size to bacteria, protozoan cysts and helminth ova, does not penetrate the stem-end of fresh vegetables to any appreciable extent. Bacteria do not penetrate the unbroken skin of fruits and vegetables kept under market conditions. Bacteria, pathogenic to man, may gain entrance to fruits and vegetables through injured and decayed portions, where they may spread to a very limited extent, and may remain alive for from seven to forty-two days. They may also contaminate the cut-end of vegetables and remain viable for a similar length of time. It is, therefore, advisable to remove such portions before attempting sterilization. Pathogenic bacteria may persist on the surface of fruits and vegetables kept under moist conditions for fifteen days or more. The gradual loss of moisture through the covering of fruits and vegetables would tend to keep them viable longer than would be possible on perfectly dry surfaces. When such foodstuffs are freshened with water, the viability would be influenced by the saprophytic flora, normal to such an environment. Chlorination freed the surface of vegetable matter from pathogenic bacteria in every instance, but was not effective against cysts or ova. Dipping fruits and vegetables for ten seconds into boiling water or water which remains above 80 C. during the immersion, is the only method thus far discovered which will uniformly kill all pathogenic bacteria, protozoan cysts and helminth eggs which might be found contaminating such food products, and render them safe for human consumption in an uncooked condition.

Hemolytic Proteus Bacillus in Bone Marrow in Pernicious Anemia.—A marrow smear was made by Kline at necropsy of a case of severe anemia having all the clinical manifestations of pernicious anemia, forty-six hours post mortem, and found to contain, in addition to the usual cytologic picture, a large number of proteus bacilli. A culture was obtained after charring one end of a rib in the free flame by expressing through this end a small amount of marrow. A few loopfuls of this material were shaken up in 2 c.c. of broth and the suspension streaked on Endo and blood agar plates. The next day hundreds of colonies were noted, apparently a pure culture of proteus bacillus. This organism grows well on ordinary mediums, has a fairly characteristic sugar reaction and unusually great hemolytic power. The blood picture was followed in eighteen inoculated animals, smears showing the appearance in the circulation of a moderate number of nucleated red blood cells, usually within forty-eight hours. Megaloblasts, also in moderate number, were occasionally observed. Animals, inoculated with repeated, increasing doses of the organism, over a period of a few weeks, developed a siderosis, more marked in the spleen and bone marrow, moderate in the liver. A hyperplastic bone marrow was found in the majority of the inoculated animals.

Proteus Culture.—The hemotoxin of a culture of *Proteus*, isolated from human bone marrow, was studied by Ecker and Brittingham. The toxin rapidly hemolyzed human, sheep, dog, cat, guinea-pig and rat erythrocytes. The production of *Proteus* hemotoxin varied greatly with the strain employed. The lytic principle was independent of the life of the organism. The organisms were killed by etherization. The cultures remained toxic after cell death. The lytic principle was retained in the filtrate of cultures passed through a Berkefeld candle. The hemotoxin was thermolabile. Even as low a temperature as 37 C. weakened it. At 45 C. its power was greatly reduced and at 55 C. it was completely destroyed. Ultraviolet light greatly retarded its power, depending on distance and length of exposure. Normal rabbit serums, if given sufficient time to act on the toxin, prior to the addition of the cells, will protect. Antihemotoxic (rabbit) serums, however, demonstrated a definite neutralizing power, if the serum and toxin were first mixed and the cells then added to them. Under similar conditions normal rabbit serums failed to protect. These antihemotoxic serums did not protect against the action of tetanolysin.

Scarlet Fever Spread by Ice Cream.—An epidemic of scarlet fever occurred in Flint, Mich., during July and August, 1924. A rapidly developing epidemic in hot weather, when scarlet fever is out of season, immediately suggested dissemination through some food product. The results of detailed investigations confirmed these suspicions, and definitely fixed the responsibility for the epidemic on an ice cream maker who continued working while he was clinically a scarlet fever patient. He made all of the ice cream sold by his company over the week end of July 26, a pleasant, warm Saturday and Sunday, which invited ice cream consumption. Of the 116 patients, sixty-two, or 53.45 per cent., were attacked within three days of this Sunday, and an additional thirty-six, or 31.03 per cent., during the following week. Milk supplies were found to have no relation to the outbreak.

American Journal of Medical Sciences, Philadelphia

170: 313-468 (Sept.) 1925

- *Adiposity and Other Etiologic Factors in Diabetes Mellitus. J. M. Anders and H. L. Jameson, Philadelphia.—p. 313.
- *Problems in Diagnosis and Treatment of Infiltrating Tumors of Cerebral Hemispheres: New Surgical Procedure. C. A. Elsberg, New York.—p. 324.
- *Leptospirosis Icterohemorrhagica (Weil's Disease). J. Sailer, Philadelphia.—p. 332.
- *Tintometer for Analysis of Color of Skin. L. G. Rowntree and G. E. Brown, Rochester, Minn.—p. 341.
- *Giardiasis. B. B. V. Lyong and W. A. Swalm, Philadelphia.—p. 348.
- *Tropical Sprue in Child Six Years of Age. With Isolation of Monilia from Patient and Tissues of Inoculated Animal. G. Johnson and F. T. Breidigain, Battle Creek, Mich.—p. 364.
- *Severe Anemias of Pregnancy and Puerperium. R. C. Larrabee, Boston.—p. 371.
- *Nonfatal Carbon Monoxid Poisoning: Report of a Case. B. J. Alpers, Phialdelphia.—p. 390.
- *Effect of Spleen Extract and Bone Marrow on Blood Picture in Pulmonary Tuberculosis. R. W. Dunham, Oak Forest, Ill.—p. 394.
- *Six Cases of Pyelitis in Newly Born Infant. R. H. Graham, Aurora, Ill.—p. 401.
- *Practical Value of Neutral Red as Test for Gastric Secretory Function. G. M. Piersol, H. L. Bockus and J. Bank, Philadelphia.—p. 405.
- *Unusual Eosinophilia with Splenomegaly (Eosinophilic Leukemia?) in Child Aged Six Years. M. H. Bass, New York.—p. 416.
- Increased Permeability of Vessel Walls as Frequent Cause of Pulmonary Hemorrhage. F. M. Pottenger, Monrovia, Calif.—p. 420.
- Nonpostcicatricial Keloid: Case. G. L. Waldbott, Detroit.—p. 425.
- Subphrenic Abscess. L. Tuft, Philadelphia.—p. 431.

Adiposity as Cause of Diabetes Mellitus.—The predominant effect of adiposity as a predisposing cause of diabetes is indicated by the figures quoted by Anders and Jameson. They believe that the phenomenal rise in the diabetes death rate and incidence among women in recent years is not due solely to their greater and more general adiposity.

Operation for Cerebral Tumors.—Elsberg suggests that instead of the major operative procedure used in these cases the following method be adopted as a regular procedure: An incision is made through the scalp under local anesthesia, in a location and direction that it may form part of the line of incision for the outlining of an osteoplastic flap, if that be later required. Through this primary short incision, a button of bone is removed with the trephine and a small incision, sufficient to permit the passage of a blunt brain puncture needle, is made in the dura. If no tumor is found directly under the opening in the dura, the subdural space is carefully explored in various directions with a broad, flat probe made of German silver and bent so that it can be passed underneath the dura. For this purpose, the blunt cannula devised for puncture of the corpus callosum can be used. If a distinct, firm resistance is felt by this subdural exploration—as would occur in the presence of a meningeal tumor—then the surgeon at once proceeds to anesthetize a large area to divide the scalp and to make a large osteoplastic bone flap. If no resistance is met with, the brain itself is punctured in several directions with a blunt ventricular puncture needle. If a cavity which contains the typical yellow fluid which occurs in a gliomatous cyst is entered, the fluid is emptied by aspiration, air is injected in order to obtain a roentgenogram of the cyst cavity, and the small incision in the scalp is then closed by suture and the patient sent to the roentgen-ray room. If, on the other hand, no resistance to the passage of the blunt needle is encountered (and this is often the case), the small plugs of brain tissue obtained by aspiration are carefully preserved in liquor formaldehydi for histologic examination. The direction in which the needle was passed and the depth to which it was inserted is carefully noted, and the operation is concluded for the time being. The further course of the procedure will depend on the results of the roentgen-ray and the laboratory examinations.

Infectious Jaundice in Philadelphia.—Two cases of infectious jaundice are reported by Sailer in each of which *Leptospira icterohemorrhagica* was found. It is believed that they are the first cases occurring spontaneously to be recognized in Philadelphia and its environs.

Tintometer for Analysis of Skin Color.—From a large number of plaques representing artists' reproductions of skin color from approximately 100 normal and pathologic subjects a tintometer has been constructed by Rowntree and Brown which apparently covers adequately the entire range of color variations encountered in human skin in health and disease. The tintometer consists of multiple color scales, each composed of ten plaques, representing progressive increase in color, each plaque of which has been analyzed qualitatively and quantitatively and expressed in three dimensions of hue, value and chroma. The normal range of variations has been first determined. A separate color scale has been constructed for jaundice, cyanosis, erythrosis and brown pigmentations, each resembling somewhat the Tallqvist scale employed in the clinical determination of hemoglobin. By means of these tintometers direct comparisons with the color of the skin are made.

Giardiasis.—Lyon and Swalm report and analyze the clinical data in twenty cases of giardiasis in adult patients. The disease is most often found clinically associated with disease of the gallbladder, bile ducts and duodenum. It is unusually resistant to all forms of treatment.

Tropical Sprue in Child.—A case of tropical sprue in a child, aged 6 years, including animal inoculation and isolation of *Monilia psilosis* both from the animal after necropsy had been done and from photomicrographs of the parasites as stained in tissue, is reported by Johnson and Breidigain together with the treatment given and the results.

Anemias of Pregnancy and Puerperium.—Seventeen cases are recorded by Larrabee of anemia occurring in pregnancy and the puerperium, all of severe grade. The blood picture may be that of secondary anemia, pernicious anemia, or aplastic anemia, or it may be atypical. All seven patients with the secondary blood picture recovered. Transfusion seems a question of expediency rather than necessity. Eight patients presented the pernicious blood picture. Of four not transfused, three died. Four recovered after transfusion. One patient with aplastic anemia died in spite of transfusion. In a highly typical case recovery ensued after splenectomy, repeated transfusions having been unsuccessful.

Nonfatal Carbon Monoxid Poisoning.—Alpers reports a case of proved carbon monoxid poisoning in which exposure was not sufficient to cause death, but in which the symptoms corresponded to the anatomic distribution of the lesions found in more severe cases. By means of this also a closer correlation of clinical and pathologic findings is possible, for a careful study of the former in a patient not succumbing to the gas will reveal where and to what extent certain brain areas are affected in the less severe cases, and whether these cases show a progressive degeneration in the areas affected. Aside from this, the progress of a patient who has been sufficiently injured by carbon monoxid to produce definite symptoms of brain destruction without causing death is in itself a matter of interest, particularly since very few such cases have been put on record.

Spleen Extract and Bone Marrow in Tuberculosis.—Twenty-three cases of active pulmonary tuberculosis are reported by Dunham in which this medication was employed; two showed no improvement in the blood picture; three were slightly improved; seven moderately improved and eleven were markedly improved, making a total of twenty-one cases, or 91 per cent. improved. Spleen extract and bone marrow will definitely increase the production of erythrocytes and hemoglobin.

Infecting Organism in Pyelitis of New-Born.—The infecting organisms in Graham's series were *Staphylococcus aureus*, a nonhemolytic streptococcus and *B. coli*, each in two cases. The time of onset suggests an invasion by the bacteria at the time of birth in most instances. One case suggests a congenital infection. Leukocyte counts ranged from 11,000 to 16,000. Blood cultures were negative. These patients responded to alkalis and large quantities of water.

Neutral Red Test of Gastric Function.—Piersol, Bockus and Bank assert that neutral red can be looked on only as an imperfect test for gastric function, since it furnishes no information as to the motor power of the stomach.

Eosinophilia with Splenomegaly.—A case of extreme eosinophilia is described by Bass occurring in a girl, aged 6 years. During the two and a half months in which the child was under observation she showed a moderately enlarged spleen; slight general adenopathy; leukocytosis varying between 14,800 and 25,600; eosinophilic polymorphonuclear cells varying between 37 and 64 per cent., and eosinophilic myelocytes present up to 6.3 per cent. Four somewhat similar cases in adults are reported from the literature, two with necropsy. The relation of this condition to leukemia is discussed.

American Journal of Ophthalmology, Chicago

8: 681-752 (Sept.) 1925

Operation for Glaucoma. J. Stefansson, Winnipeg, Can.—p. 681.
Coloboma of Iris, Choroid and Optic Disc with Detachment of Retina. H. P. Wagner and F. Gipner, Rochester, Minn.—p. 694.
Extensive Sarcoma Originating from Pigmented Nevus of Conjunctiva. F. Lane, Chicago.—p. 698.
Hysteric Amblyopia and Amaurosis. F. E. Burch, St. Paul.—p. 699.
Medullated Nerve Fibers Involving Macula. G. F. Libby, Denver.—p. 713.
Ocular Effects of Lipin-Protein and Defatted Tubercle Bacilli Injected into Common Carotid Artery of Rabbits. D. H. O'Rourke, Denver.—p. 715.
Uveitis. A. C. Woods, Baltimore.—p. 721.

8: 761-848 (Oct.) 1925

Circulatory Regimen of Glaucoma. A. Magitot and P. Bailliart, Paris, France.—p. 761.
Mustard Gas Burn of Cornea. D. J. Lyle, Cincinnati.—p. 779.
Tumor of Orbit, of Doubtful Origin. R. E. Wright, Madras, India.—p. 781.
Hydrophthalmus. H. D. Lamb, St. Louis.—p. 784.
Melanosarcoma of Choroid. F. E. Brawley, Chicago.—p. 790.
Critical Survey of Neoplasms of Choroid. M. S. Knight, Rochester, Minn.—p. 791.
Conical Cornea. V. Westcott, Chicago.—p. 802.
Our Knowledge of Focal Infections. G. Woodruff, Joliet, Ill.—p. 805.
Bilateral Congenital Microphthalmus with Cyst of Orbit. V. Derkac, Zagreb, Jugoslavia.—p. 809.
Voluntary Nystagmus. D. B. Kirby, New York.—p. 810.
Neuropapilledema in Chlorosis. G. N. Brazeau, Milwaukee.—p. 811.
Buphthalmus. J. A. Morgan, Honolulu, T. H.—p. 813.
Scissors Magnet Extraction. E. Jackson, Denver.—p. 813.

Archives of Dermatology and Syphilology, Chicago

12: 463-612 (Oct.) 1925

Late or Tertiary Manifestations of Yaws. P. D. Gutierrez, Manila, P. I.—p. 463.
*Recklinghausen's Disease. H. Schneiderman, Kansas City Mo.—p. 483.
Granuloma Pyogenicum; Twenty-Nine Cases. H. E. Michelson, Minneapolis.—p. 492.
Angioma Cavernosum. Case Treated with Radium. C. N. Frazier, Peking, China.—p. 506.
*Epitome of History of Syphilis. A. Capper, Philadelphia.—p. 509.
Leukonychia. M. S. Woolf, San Francisco.—p. 520.
Telangiectasia; Treatment with Cautery. S. Feldman, New York.—p. 522.
*Sodium Chlorid in Treatment of Bromism. James Stevenson, Boston.—p. 525.
Hair; Hypertrichosis. C. H. Danforth, Stanford University, Calif.—p. 528.

Recklinghausen's Disease.—The study of four cases by Schneiderman failed to reveal any endocrine dysfunction in the etiology of Recklinghausen's disease. He supports, however, the theory of an embryonic disturbance in the ectoderm as the cause of neurofibromatosis. Furthermore, Recklinghausen's disease has a distinct hereditary tendency in the great majority of cases, if not in all. Many patients with this anomaly deny the presence of cutaneous tumors in other members of the family because some other member happens to have the so-called abortive type of Recklinghausen's disease, having only one or two small tumors, and a predominance of nervous symptoms. These patients are not only unrecognized by the family, but by the physician as well. In the light of experimental revelations, it is more probable that the anomalies represented by Recklinghausen's disease are due to a physical, chemical or nutritional disturbance in the environment of the developing embryo at the stage when the ectoderm is forming the nervous system and are transmitted to the following generations according to the mendelian law.

History of Syphilis.—Capper is convinced that syphilis did not exist in the Old World before 1493, except, perhaps, in Eastern Asia, and particularly along the Pacific coast. Syphilis did exist in America before Columbus arrived there. The origin of syphilis in America could perhaps be traced by way of the Bering sea from Japan or from any other part of Eastern Asia. Syphilis was imported into Europe from the New World by the crew of Columbus in 1493. The epidemic that was raging in Europe following the return of Columbus was due either to some disease or diseases other than syphilis or to syphilis plus the other diseases, syphilis, however, playing a minor rôle in the ravages resulting from the epidemic.

Sodium Chlorid in Treatment of Bromism.—Stevenson states that sodium chlorid given in appreciable amounts intravenously or by mouth hastens the excretion of bromid from the body. This action is not due to dieresis, but to the chlorid replacing bromid by mass action. If given by mouth, sodium chlorid may well be administered in phenol salicylate coated tablets or pills, 60 grains once a day. The bromodermas rapidly regress under this treatment. Nephritis is a contraindication to this therapy.

Georgia Medical Association Journal, Atlanta

14: 357-398 (Sept.) 1925

Myxedema. H. R. Slack, LaGrange.—p. 359.
Gastric and Duodenal Ulcers with Medical Treatment. J. D. Gray, Augusta.—p. 362.
Roentgen Ray in Diagnosis of Duodenal Ulcer. L. P. Holmes, Augusta.—p. 368.
Ulcers of Stomach and Duodenum. R. H. Chaney, Augusta.—p. 370.
Acute Appendicitis; Peritonitis (General); Ileo-Appendiceal Fistula. B. T. Beasley, Atlanta.—p. 375.
Breath Sounds Over Mastoid Cells. J. R. Lewis, Louisville.—p. 375.

Journal of Urology, Baltimore

14: 199-310 (Sept.) 1925

*Typhoid Infections of Kidney. F. S. Patch, Montreal.—p. 199.
*End-Results in Renal Infections. W. C. Quinby, Boston.—p. 223.
Need of Conservatism in Renal Surgery. A. L. Chute, Boston.—p. 231.
Cases of Two-Step Nephrectomies. N. G. Alcock, Iowa City.—p. 239.
Rôle of Nephrostomy in Genito-Urinary Surgery. A. H. Crosbie, Boston.—p. 239.
*Blood Transfusions in Genito-Urinary Surgery. M. L. Boyd, Atlanta, Ga.—p. 253.
*Operative Approach for Malignant Tumors of Kidney. H. Cabot, Ann Arbor, Mich.—p. 261.
Solitary Serous Cyst of Kidney; Case. R. F. O'Neil, Boston.—p. 269.
*Bladder Neoplasms. D. W. MacKenzie, Montreal.—p. 275.
Total Cystectomy for Cancer; An Obsolete Operation. E. Fischel, St. Louis.—p. 285.
Fallacious Orifice; Contracture of Vesical Neck. J. R. Caulk, St. Louis.—p. 293.
Sarcoma of Prostate; Case. H. Culver, Chicago.—p. 301.
Improved Knife for Young's Prostatic Punch. H. A. R. Kreutzmann, San Francisco.—p. 311.

Typhoid Infections of Kidney.—Two cases of pyonephrosis due to *B. typhosus* are reported by Patch, and eight cases from the literature are reviewed. In both of Patch's cases, the disease was unilateral. There is nothing to indicate the exact time of onset in either case. In the first case, there was no history of an attack of typhoid. The woman may have been a typhoid carrier, in the gallbladder or in the intestine. Infection in the kidney may at any time have been precipitated by any localizing incident in the kidney. In the second case, there was nothing in the case history to indicate when the renal infection began. It may have been contracted in either one of two attacks of typhoid in 1911 and 1920. Masses of calculi were found scattered in the calices of the first case. Patch believes that typhoid infections of the kidney are more common than has been generally believed. They must be regarded as of hematogenous origin.

End-Results in Renal Infections.—Quinby states that a kidney is capable of withstanding a very considerable amount of infection without loss of all its factor of safety in renal tissue. The course of infections of the kidney is usually of long duration, symptoms of a general sort being often slight and to be found only on careful investigation, intermingled by exacerbations of greater or less severity, which attacks are not rarely erroneously attributed to "grip," "lumbago" or "biliousness." Localizing symptoms, either of kidney or of bladder, are frequently absent, especially in the earlier months of the infection and between the acute attacks. The possibility of restoring a kidney to a state of healthy activity and of preventing continuance of renal damage should be better appreciated by both the family physician and the surgeon. In many an instance there is abundant opportunity for a much earlier diagnosis than is usually made. Institution of treatment at a time preceding that at which the kidney has become badly crippled in its structure and overwhelmed by infection will avoid many nephrectomies. For this purpose the method of frequent renal lavage through the inlying ureteral catheter, which at the same time relieves stasis, is of great benefit.

Blood Transfusion in Genito-Urinary Surgery.—Boyd's experience with transfusions of blood lead him to advocate very strongly their use in genito-urinary surgery. Not only are they of value for the purpose of saving life in an extreme emergency, but also to assist in carrying patients safely through operations by giving them needed blood before operation, and to mitigate the symptoms due to a loss of blood and shock.

Incision for Tumor of Kidney.—The transverse incision combined with a vertical midline incision is regarded by Cabot as the method of election for attack on tumor of the kidney. The incision should be started well back in the loin near the anterior border of the erector group. It should be planned to pass not far from the lower border of the twelfth rib, inclining slightly downward until it reaches the midline of the body in the region of the umbilicus. The course of this incision does not traverse any nerve trunks of importance and will not result in paralysis of the rectus or of any important amount of the oblique muscles. It is then met by an incision in the midline carried upward to any necessary extent. This can do no damage to nerve supply or to any other important structure. It allows the raising of a triangular flap which gives direct access to all of the structures of the upper quadrant. Through this incision the costal margin may be lifted as freely as is ordinarily necessary. The peritoneum is lifted from the posterior wall, carrying with it the colon and its mesentery, which may be turned inward as far as the midline. This flap of peritoneum with its intestinal and mesenteric content has the effect of keeping the other intestines out of the way and gives a wholly satisfactory view of the field.

Bladder Neoplasms.—MacKenzie analyzes 228 cases, of which 118 were malignant. There were thirty-nine papillomas, seventy papillary carcinomas, eight carcinomas and one sarcoma. Hematuria was the chief complaint in 75 per cent. of cases and usually the cause for seeking relief. Frequency was the chief complaint in 25 per cent. of cases, and was an associated complaint in from 40 to 60 per cent. Dysuria was the chief complaint in 10 per cent. of cases; and an associated symptom in from 15 to 20 per cent.

Philippine Journal of Science, Manila

27: 455-610 (Aug.) 1925

*Disturbances of Cutaneous Sensibility in Leprosy. J. N. Rodriguez.—p. 455.
Hookworm Campaign in Cebu. C. Manalang.—p. 483.
Horse Parasites Collected in Philippine Islands. B. Schwartz and E. B. Cram.—p. 495.
Two Strange New Fishes from Luzon. A. W. C. T. Herre.—p. 507.
Anthicidae of Philippines. H. Krekich-Strassoldo.—p. 515.
Tenebrionides (Coleptera) of Indomalay. VII. Von H. Gebien.—p. 539.

Cutaneous Lesions in Leprosy.—Rodriguez asserts that not all the cutaneous lesions of leprosy are anesthetic. Sixteen per cent. of infiltrations do not show any disturbance of the cutaneous senses. The character of the anesthesia depends on whether it is located in a macule, an infiltration, or a skin free from lesions. In macules there is, as a rule, early loss of epicritic sensibility; in nodules and infiltrations the anesthesia is very variable; and in a skin free from eruptions a partial dissociation of the syringomyelic type is effected. These differences suggest the possibility that the cutaneous nerves may be involved in various ways, depending on the character of the overlying skin lesion. The anesthesia shows definite improvement under ethyl ester treatment although, as is to be expected, it is not as well marked as the improvement in the cutaneous lesions. Although the absence of anesthesia does not exclude leprosy, the touchstone in doubtful cases, from the clinical standpoint, is its presence in some cutaneous lesion or in some skin area. The final confirmation of the diagnosis is the presence of the specific organism in the lesions or on the nasal septum.

Tennessee State Medical Association Journal, Nashville

18: 89-120 (Aug.) 1925

Complete Bilateral Duplication of Ureters; Case Report. P. Bromberg, Nashville.—p. 89.
Glaucoma. W. S. Dotson, Lebanon.—p. 99.
Operative Treatment of Spastic Cerebral Paralysis. J. S. Speed, Memphis.—p. 107.
Hand Infections. L. M. Woodson, Gallatin.—p. 112.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

9: 433-480 (Sept.) 1925

Acute Retrobulbar Neuritis Affecting Optic Chiasm and Tract. H. M. Traquair.—p. 433.
Two Cases of Nontraumatic Cysts of Anterior Chamber. D. J. Wood.—p. 450.
Cyst of Iris. R. E. Wright.—p. 454.

British Journal of Radiology, London

30: 283-326 (Sept.) 1925

*Some Rarer Intracranial Calcifications and Ossifications. J. O'Sullivan.—p. 295.
Radium Treatment of Tumors of Skin. A. Burrows.—p. 304.

Intracranial Calcifications.—O'Sullivan cites cases of (1) symmetrical retrobregmatic ossifications of the dura; (2) calcified cysticercus; (3) calculi in the brain, and (4) a calcified tumor, probably a psammoma in the posterior portion of the left lateral ventricle.

British Medical Journal, London

2: 547-588 (Sept. 26) 1925

Borocaines: New Class of Local Anaesthetics. A. J. Copeland and H. E. F. Notton.—p. 547.
Syphilitic Nephritis. G. B. Dowling.—p. 551.
*Treatment of Diabetes by Raw Fresh Gland (Pancreas). R. Carrasco-Formiguera.—p. 552.
Present Position of Pathology and Bacteriology in England. J. C. G. Ledingham.—p. 554.
Food Manipulation in Relation to Health. W. G. Savage.—p. 560.
II. Accidental Contamination of Food. C. E. Goddard.—p. 563.
*Death Following Passing of Stomach Tube. G. A. Allan.—p. 565.
Full-Time Pregnancy in Bicornuate Uterus. J. C. Lyth.—p. 565.
Optic Neuritis Due to Disease of Anterior Ethmoidal Cells. H. Nuttall.—p. 565.
*Recurrent Hair-Ball of Stomach. R. Harris.—p. 565.
*Splenic Anemia: Splenectomy; Recovery. G. R. Kingston.—p. 566.
Transient Glycosuria Following Scorpion Sting. G. Graham.—p. 566.
*Death from Hemorrhage in Scarlet Fever. A. Calder.—p. 566.
Acute Appendicitis Associated with Sarcoma of Appendix and Volvulus of Cecum. V. Pennell.—p. 566.

Fresh Pancreas in Treatment of Diabetes.—The data obtained by Carrasco-Formiguera in one case studied carefully show that, in a patient who had never before received insulin and was on a constant diet, raw fresh pancreas, administered in the form advised by Hollins, and even with an additional dose at dinner time, thoroughly failed to diminish a glycosuria (it was rather increased), which was very quickly reduced to traces on the next day by a very moderate dose of insulin, and completely disappeared on the fifth day of insulin treatment. All duly controlled experiments, recent as well as ancient, show that the oral administration of raw fresh pancreas has no beneficial immediate effect on glycosuria in diabetic patients. Thus far, there are no known facts supporting the very faint theoretic possibility that this form of pancrotherapy might have any kind of delayed beneficial influence in the treatment of diabetes.

Death Follows Passing of Stomach Tube.—Allan relates the case of a man who complained of pains in the epigastrium and behind the shoulder coming on soon after the taking of food and accompanied by flatulence, in addition to much shortness of breath on exertion. Every effort to find a cause for this condition proved futile. Finally, a further test meal was given to determine whether there was any alteration in the gastric acidity. When the tube was passed to remove the stomach contents, the patient had an attack of coughing and a dram or two of fluid was ejected from the tube. He suddenly became very pallid and the tube was immediately withdrawn, but he died almost instantaneously. There was no external bleeding. The only explanation that could be offered was that the patient had had an attack of syncope or angina set up reflexly by the passing of the tube. Necropsy was not permitted.

Recurrent Hair Ball of Stomach.—Harris relates the case of a woman from whose stomach five hair balls had been removed on five separate occasions, in 1911, 1920, 1922, 1923 and 1924. Apart from her hair-eating habits, this woman was quite normal mentally. She seems to have suffered no permanent ill effects from her repeated operations.

Splenic Anemia with Splenectomy.—Kingston's patient, aged 5½ years, had had twenty-two attacks of melena, and six of hematemesis, nearly all being severe enough to blanch the child and keep her almost constantly in bed. She was tapped eleven times at weekly intervals, from 4 to 7 pints of clear straw-colored fluid being removed on each occasion. The spleen was removed. It weighed 1 pound. Five months after the operation the child was much stronger, had gained 14 pounds in weight and was much improved in general health.

Death from Hemorrhage in Scarlet Fever.—The hemorrhage in Calder's case occurred on the thirty-fourth day of the disease, from the external jugular, which ruptured and the child died. Incident to a very severe sore throat a great deal of sloughing resulted exposing the vein and the carotid artery to view.

China Medical Association Journal, Shanghai

39: 667-766 (Aug.) 1925

Development and Longevity of Hookworm Larvae in Different Temperature Conditions. R. Stevensson.—p. 667.
Hookworm Control in China. N. Bercovitz.—p. 673.
*Fundus Oculi of Kala-Azar Patients. W. P. Ling.—p. 681.
Syphilis: Central Nervous System and Antisyphilitic Treatment. M. O. Pfister.—p. 688.
Eight Years' Work in China in Gynecologic Outpatient Clinic. F. J Heath.—p. 701.
*Hongkong Foot. G. N. Frazier.—p. 705.
*Operation for Superficial Varicose Veins of Leg. R. B. Price.—p. 712.
Preputial Calculus. E. C. Wilford.—p. 712.

Fundus Oculi in Kala-Azar.—Observations made by Ling on the fundus of five cases of kala-azar suggest a definite relationship between the occurrence of retinal hemorrhages and the low degree of secondary anemia in this disease. Of four patients with retinal hemorrhages two were observed long enough to show complete absorption. In one case complete absorption took fully four months. In a second case it took about five months. The gradual absorption of hemorrhage goes hand in hand with the improvement of the anemia.

Hongkong Foot.—Hongkong foot is an infectious disease of mycotic origin found in North, Central and South China. In Peking, during the summer months, it is commonly seen and occurs with equal frequency among Chinese and foreigners. The initial symptom is a persistent, intolerable itching of the hollow of the sole, or of the toes and the interdigital spaces. This symptom does not disappear with the development of cutaneous lesions. These manifest themselves in one of two forms, or more frequently in a combination of the two. The first and more common consists of small, deep-seated, epidermal vesicles, which contain a clear serum. These are usually situated on the inner margin of the hollow of the sole; on or between the toes, especially the third, fourth and fifth digits at their proximal extremities; and on the plantar surface near the toes. The great and second toes are conspiculously avoided by the infection. With evolution of the vesicular lesions their coverings become thinner and usually rupture, discharging a sticky, serous fluid, after which rapid desiccation and exfoliation ensues. New lesions continue to form throughout the active period of the disease. With the onset of cold weather the process has a tendency to subside. Not uncommonly through traumatism and lack of care, secondary pyogenic infection complicates the picture. The vesicular type is found on the hands, concomitant with or independent of, similar lesions of the feet. Hongkong foot is not peculiar to China. Under the name of eczematoid dermatitis of the extremities, ringworm of the hands and feet, Dhobie itch of the toes, epidermophytosis, etc., the disease has been described in Europe and America (where it is quite common) and in tropical countries.

Operation for Superficial Varicose Veins.—The operation employed by Price is as follows: the patient is anesthetized and the leg allowed to hang over the table, thereby distending the veins, or a tourniquet may be applied. The surgeon with heavy silk threaded in a curved skin needle, passes a number of sutures through the skin, under the vein, and out through the skin at a point on the opposite side of the vein from the point of entrance. These sutures are placed from one-fourth to one-half inch apart and as many may be used as desired. The ends of the sutures are caught with forceps and when all are in place they are tied tightly, usually from above downward, in bowknots on top of the skin. Occasionally, the needle punctures a vein but this accident makes no difference, for other sutures on each side of the puncture will close the vein. After all sutures are tied the leg is wrapped loosely in a sterile cloth, secured with safety pins. A bandage will cause great pain. The patient is kept in bed. On the seventh day after operation the sutures will be found to have become loose. They are untied and tied again tightly. This is somewhat painful but not excessively so. On the fourteenth day the sutures are removed and the patient is allowed out of bed. The vein will have been obliterated.

Indian Medical Gazette, Calcutta

60: 403-452 (Sept.) 1925

Diagnosis of Hookworm Infection; Estimating Egg Output. A. C. Chandler.—p. 403.
*Toxicity of Carbon Tetrachlorid to Cats. A. C. Chandler.—p. 406.
"Diagnosis" in Hospitals. C. C. Murison.—p. 407.
Dementia Praecox. F. Noronha.—p. 415.
*Experiments in Air Embolism. A. R. D'Abreu.—p. 417.
Abdominal Conditions with Inflation of Oxygen Gas. R. S. Grewal.—p. 421.
*Action of Disinfectants on Microbes. H. Grosh.—p. 423.
"Stibosan" (Von Heyden "471"). S. K. Das.—p. 425.
*Internal Strangulation by Spermatic Cord. M. N. S. Chetti.—p. 426.
Gangrene of Testes After Torsion of Spermatic Cord. M. N. S. Chetti.—p. 426.
Pedunculated Papilloma of Tongue. H. J. H. Spreadbury.—p. 427.
Swallowed Corkscrew. H. M. Hande.—p. 427.
Case of Undetected Gunshot Wound. P. Pant.—p. 427.
Malignant Pustule. G. Panja.—p. 428.

Toxicity of Carbon Tetrachlorid.—Of forty-nine cats which were given 0.5 c.c. of carbon tetrachlorid per kilogram, only four survived; of twenty-seven which were given 0.25 c.c. per kilogram, three survived; and of twelve given 4 c.c. per kilogram, all died. Ten of the twelve which were given 4 c.c. vomited within about half an hour. Altogether, eight cats out of the eighty-seven died on the day following treatment, thirty on the second day, twenty-three on the third day, seven on the fouth day, and four on the fifth day; five were killed when in a dying condition, and seven survived. Chandler and Chopra cut sections of the liver and kidney of all these cats, and sections of the spleen, suprarenal, and intestinal wall of many of them. No significant changes were found in the spleen, and in only a few instances was found the necrosis reported by Phelps and Hu. The intestinal wall in some instances showed the villi severely congested and occasionally denuded of the epithelium. The really important lesions were found in the liver and kidneys. The liver in every instance showed the central necrosis which is so characteristic of carbon tetrachlorid, and usually a very extensive fatty degeneration was present. From 25 to almost 100 per cent. of the liver tissue was damaged, even in cats which received only 0.25 c.c. per kilogram. Most remarkable, however, were the lesions found in the kidneys; in many, if not in most, instances, Chandler and Chopra believe that the renal rather than the hepatic damage was the actual cause of death and that the susceptibility of this organ in cats accounts for the much greater toxicity of carbon tetrachlorid for cats than for dogs. The convoluted tubules showed extensive fatty degeneration and frequent necrosis, but the collecting tubules were as a rule little affected; there was often desquamation—sometimes very extensive—of Henle's loops. The Bowman capsules were frequently infiltrated with blood, and the glomerular endothelium was swollen and the vessels dilated. In every instance in which it was possible to obtain urine at necropsy there was albumin present, often in great quantity, and there was frequent evidence of blood.

Air Embolism.—A few small bubbles of air injected into a vein at a slow rate are apparently harmless, and the same also appears to apply to a small continuous column of air, judging from the results of D'Abreu's experiments. In one experiment, 24 ounces of air was sufficient to produce the death of a bull weighing approximately 500 pounds, so that a man weighing from 140 to 154 pounds would proportionately take about 6 or 7 ounces as the lethal dose.

Action of Disinfectants on Microbes.—The interesting point in the experiment made by Grosh is that the microbes seem to be killed by a certain dilution of the disinfectant up to the first five hours of contact but divide and multiply when placed in fresh medium after twenty-four hours. It is possible that most of the microbes are killed by the disinfectant effect of the chemicals used; others, more resistant, get attenuated and lose the power of division and multiplication for a certain period, during which time they show no growth even when placed in a fresh medium. This period may be called a period of shock to the bacteria. Later, as the time of contact increases, this condition of shock passes off, and they adapt themselves to the environment and begin to multiply again, and on inoculation into new medium show abundant growth.

Internal Strangulation by Spermatic Cord.—In Chetti's case, the abdomen was distended like a drum and tender all over. The pulse rate was 90 per minute, the respiration 30 and the temperature was normal. The patient, on examination, had just commenced to vomit. Although nothing pointed to any trouble in the scrotum, this was examined. The skin of the scrotum was loose. The testis with its sac was felt to be tense, but no tenderness was elicited. There was no evidence of bulging of the inguinal canal or enlargement of the external ring. The usual signs of an ordinary inguinal strangulated hernia were absent. There was absolutely no pain over the ring. An incision was made over the external ring both above and below. A small sac was exposed and incised, and a small quantity of brownish-red fluid was emptied out. The testicular substance was a dark purple and was found to be tightly gripped at the external ring above the globus major. An attempt was made to pull the testis downward without success. The external ring was gently and gradually incised; when it was sufficiently cut, the testis went into the abdomen with a snap. There was nothing else in the sac or in the inguinal canal. An attempt was made to search for the lost testis inside the abdomen through the internal ring, but it failed. The usual operation for hernia was performed and the patient was put back to bed. Chetti emphasizes the importance of careful examination of the scrotum in all cases of acute intestinal obstruction.

Archives des Maladies du Cœur, etc., Paris

18: 497-560 (Aug.) 1925

*Intermittent Claudication of Syphilitic Origin. Letulle et al.—p. 497.
*The Oculocardiac Reflex. Fribourg-Blanc and Hyvert.—p. 512.
*Mitral Stenosis with Angina Pectoris Symptoms. L. Telia.—p. 531.

Intermittent Claudication in an Old Syphilitic.—Letulle and his co-workers observed a case of intermittent claudication in a man, aged 72, with syphilis of over fifty years' standing.

Necropsy showed that the lameness which had started two years before, was due to arteritis obliterans affecting the abdominal aorta, both iliac arteries and particularly the tibial arteries. While in diabetes the inflammatory lesions are localized in the tunica intima, in this case the middle and outer coats were chiefly involved. Infiltration of the arterial walls with cholesterol was less manifest than in diabetes.

Electrocardiograph Record of the Oculocardiac Reflex.—Fribourg-Blanc and Hyvert's research was made on 174 patients with nervous or mental disease. Compression of the eyeballs not only changed the heart rhythm, but also increased the oscillometric index in 97 per cent. of the cases. The rise in this index did not parallel the retarding or acceleration of the pulse. Increase of the systolic tension as well as reduction of the diastolic tension seemed to be connected with the rise of the oscillometric index. Electrocardiographic curves taken during the compression of the eyeball indicated an increased amplitude of intra-ocular tension in persons without functional disturbances of the myocardium. This corresponded to an exaggerated excitability of the myocardium with stronger contractions of the ventricle. Rise of the oscillometric index revealed peripheral vasoconstriction of sympathicotonic origin. Oscillometric curves, preceding and following the compression of the eyeball, demonstrate the condition of the arterial circulation in the subject.

Syndrome of Angina Pectoris with Mitral Stenosis.—Telia reports three cases which explain the mechanical origin of the pain in cases of mitral stenosis. His patients were between 17 and 27. Necropsy findings in one case showed that the attacks were traceable to the left coronary artery compressed between the left auricle and the pulmonary artery. The special precordial pain with mitral stenosis—the aortalgia—is explained by compression of the aorta and aortic plexus by the enlarged left auricle. Bloodletting (from 300 to 500 gm.) is suggested to relieve the attacks.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 1217-1298 (July 31) 1925

*Vaccination of New-Born Animals Against Diphtheria. C. Zoeller.—p. 1218.
Insulin in Treatment of Marasmus. Lesné and Dreyfus-Sée.—p. 1219.
Nephritis with Acidosis. F. Rathery et al.—p. 1223.
Cancer of the Lung. G. Caussade et al.—p. 1232.
Fatal Mercuric Chlorid Poisoning. L. Babonneix and L. Pollet.—p. 1241.
Lung Cancer with Perforation into Heart. Caussade et al.—p. 1243.
Fatal Meningitis Caused by Friedländer's Bacillus. Le Grand.—p. 1250.
*Cholesterol of the Bile in Cholelithiasis. M. Chiray et al.—p. 1252.
Capillaroscopy in Arteritis Obliterans. A. C. Guillaume.—p. 1272.
Tuberculoma of Pons Varolii. L. Babonneix and J. Hutinel.—p. 1275.
Melanuria without Melanoma. I. Goia.—p. 1277.
Cantering Rhythm with Four Sounds. Laubry and Routier.—p. 1281.
Nonsurgical Drainage of Biliary Tract by Means of Drugs. F. Ramond et al.—p. 1284.
Etiology and Anatomy of Duodenitis. Ramond and Darquier.—p. 1285.
Meltzer-Lyon Test for Study of Cholagogues. F. Ramond et al.—p. 1289.

Vaccination of Very Young Subjects Against Diphtheria.—Zoeller states that the results of his experimental vaccination against diphtheria, made during several recent months, seemed to confirm the clinical findings. Two injections of 0.5 c.c. of anatoxin, with a fifteen days' interval, were given to two new-born guinea-pigs, and 1 c.c. to three older guinea-pigs. All these animals were given a lethal dose of diphtheria toxin three months afterward. None of them died. A characteristic local reaction was manifest in the younger, but was absent in the older guinea-pigs, thus proving the greater resistance to antidiphtheria vaccination in the very young.

Cholesterol in the Bile in Gallstone Cases.—Chiray and his co-workers' conclusions are based on thirty-seven observations. In healthy subjects the amount of soluble cholesterol in the bile was not modified in visceral diseases, without changes of the liver, and not even in affections of the gallbladder, except cholelithiasis. The usual decrease of soluble cholesterol in the bile was not always present with gallstones. The fact may be explained by the two phases of the disease, the stage of formation of the gallstones, and the stage of mechanical and infectious complications. The alternation of these stages induces formation of concentric deposits on the gallstones, each layer corresponding to a lithogenetic stage. It is possible that the colloidal instability of the cholesterol is due to an insufficient secretion of biliary salts, and that the cholelithiasis is due rather to a disturbed liver secretion than to a primary affection of the biliary tract.

Comptes Rendus de la Société de Biologie, Paris

93: 553-756 (Aug. 14) 1925. Partial Index

*Action of Graafian Follicle Extract. Brouha and Simonnet.—p. 557.
Physiology of Neutrophils. A. Alexeieff.—p. 558.
*Clinical Importance of Cytodiagnosis. A. Alexeieff.—p. 561.
Acid-Base Balance of Cerebrospinal Fluid. Cestan et al.—p. 563.
*Fate of Trypanosomes in Galleria Body. E. Ivanoff.—p. 571.
*Immunization of Galleria to Danysz' Bacterium. J. Chigasaki.—p. 573.
*Morphology of Tonsil Capsule. R. Argaud and A. Viéla.—p. 574.
*Immunization Against Tetanus. G. Ramon and A. Laffaille.—p. 582.
Fat Transformation Cycle in the Organism. Grigaut and Dejace.—p. 586.
*Vagus in Peptone Shock. Garrelon and Santenoise.—p. 598.
*Albuminuria from White of Egg. M. Garnier and E. Schulmann.—p. 600.
*Antiscurvy Property of Preserved Orange Juice. Vagliano.—p. 602.
*Affinity of Radium for Cancer. Ferroux and Lacassagne.—p. 604.
*Organotherapy of Cachexia. P. Carnot and E. Terris.—p. 606.
*Action of Radium on Tetanus Toxin. R. Ferroux and S. Mutermilch.—p. 608.
Anatoxin Immunization Against Shiga's Bacillus. P. Lesbre.—p. 612.
"Individual Reactivity." C. Zoeller.—p. 615.
The *pH* of Pancreatic Juice. Dubois and Polonovski.—p. 632.
*Bacteriophage in the New-Born. R. Pierret and V. Bilouet.—p. 635.
*Apparatus for Pasteurization. Marmier.—p. 637.
*Rapid Test for Urea. C. and S. Auguste.—p. 641.
Immunization of Bacteria Against Bacteriophage. I. N. Asheshov.—p. 644.
Action of Insulin on Beriberi. X. Chahovitch.—p. 652.
Ducrey's Bacillus Not Hemoglobinophil. W. Lipinski.—p. 657.
*Golgi's Apparatus and Mitochondria. J. Hirschler.—p. 663.
*Typhus Virus in Birds. E. Selivanoff.—p. 664.
*Atropin and Atrioventricular Conductibility. P. Meyer.—p. 668.
The Acidosis with Chronic Nephritis. L. Blum et al.—p. 698.
Acid-Base Balance in Uremia. L. Blum et al.—p. 701.
*Permeability of Red Blood Corpuscles. L. Blum et al.—p. 704.
*Influence of Carbon Dioxid on Eggs. T. Rogalski.—p. 706.
Aeration of Pasteurized Milk. Stassano and Rollet.—p. 716.
Arterial Tension After Injury of the Artery. A. Cosacesco and I. Banu.—p. 732.
Surgical Treatment of Angina Pectoris. Daniélopolu and Marcu.—p. 737.
Vegetative Tonus in Psychoses. A. Obregia et al.—p. 744.
*The Suprarenals in Epilepsy. Popea and Eustatziu.—p. 747.
*Cholesteremia in Epilepsy. A. Popea and A. Vicol.—p. 749.
*Action of Protein Shock on Tonus. A. Obregia et al.—p. 751.
*Influence of Calcium on Vegetative System. Popescu-Inotesti.—p. 752.

Injection of Graafian Follicle Liquid.—Brouha and Simonnet observed that an injection of an extract of the follicle fluid prolonged the estrual cycle in mature rats, but did not modify the periodicity. The extract had no apparent influence on gestation. No changes were manifest in the mammary gland. The castrated female rats seemed to be more responsive to the follicle extract than the immature females.

Cytodiagnosis in Colitis and Pyorrhea.—Classification of the cells in pus from the stools showed that ulcerative and other forms of colitis belong to the group of chronic bacillary dysentery. The cell findings in twelve cases of alveolar pyorrhea were identical with those from normal gums. This seems to indicate that pyorrhea is not an infectious disease, but is caused by invasion of the alveolar cavity, after separation of the gum, by bacteria usually present in the mouth. Alexeieff adds that pyorrhea—for the etiology of which 350 different theories have been advanced—seems to be merely an exaggerated physiologic leukocytorrhea.

Sensitiveness of Galleria to Trypanosomes.—Injection of trypanosomes did not affect the transformation cycle of *Galleria mellonella* larvae. The fecundated insects continued to lay their eggs after the injection. Mice died in two to four days after hypodermic injections of trypanosomes that had passed through the galleria.

Immunization of Galleria.—Chigasaki's experiments demonstrated that *Galleria mellonella* is easily immunized against Danysz' bacterium in each of its three metamorphosis stages. The acquired immunity of the caterpillar is transmitted to the chrysalis and the moth.

Formation and Rôle of Tonsil Capsule.—Argaud and Viéla's research on the embryo, the new-born, adults and elderly persons showed that the capsule of the tonsil develops from the pharyngeal epithelium. It not only protects the organ, but exerts a mechanical action on the expulsion of secretions.

Immunization Against Tetanus.—Ramon and Lafaille easily induced an active immunity against tetanus in guinea-pigs and rabbits by one or two injections of anatoxin, at a twenty day interval. The same results were obtained with an injection of anatoxin given after simultaneous injections of tetanus antiserum and anatoxin. Injection of tetanus anatoxin-antitoxin mixture did not confer immunity; it seemed to hamper the immunizing action of the anatoxin, injected afterward.

Rôle of Vagus in Sensitization to Protein Shock.—Garrelon and Santenoise's further experiments on ninety dogs confirmed their conclusion that sensitization to protein shock depends on the vagus and its action on the thyroid gland.

Albuminuria from Injection of White of Egg.—Garnier and Schulmann induced albuminuria in rabbits by injections of the white of egg. The renal lesions were analogous to those from injection of different poisons. The toxic element of the white of egg did not vary under heating as long as the temperature was below that of albumin coagulation.

Antiscorbutic Property of Preserved Orange Juice.—Vagliano fed one series of guinea-pigs on a scurvy ration and another on the same diet to which a syrup made from orange juice had been added. The syrup was prepared six months before with four parts of orange juice, two of sugar and one of water, heated to 120 C. for half an hour. While all the animals of the first series died from scurvy within twenty-five days, the other group remained perfectly healthy. Obviously neither the prolonged heating nor the age had affected the antiscorbutic property of the orange juice. The conservation of vitamin C may have been due to the action of the sugar, which also insures the conservation of the antiscorbutic property of condensed milk.

Radium Emanation has No Affinity for Cancer Tissue.—Ferroux and Lacassagne's experiments on five rats with implanted cancer indicated that radium emanation, injected by any route, is chiefly found in the eliminating organs. There was no evidence of any affinity of the emanation for cancer tissue.

Gain of Weight Under Organ Extracts from Fattened Animals.—The treatment was applied by Carnot and Terris in two cachectic women, aged 69 and 52, weighing, respectively, about 62 and 67 pounds. Aside from visceroptosis there were no grave lesions. Extract of liver from a fattened pig was injected in an oil vehicle. Twenty-six injections of the solution, corresponding to 0.18 gm. of a dry extract, induced in the older woman a gain of weight by about 8 pounds in thirty-six days. In the younger woman, still under treatment, ten similar injections were followed by a gain of 2 pounds in sixteen days.

Action of Radium Emanation on Tetanus Toxin.—Ferroux and Mutermilch's tests in mice revealed that the toxicity is completely destroyed in tetanus toxin by exposure to radium emanation. Further experiments demonstrated that the antigen property is destroyed simultaneously with the toxicity under the emanation. This contrasts with the well known fact that physical and chemical agents destroy the toxic elements of toxins first. Toxins thus transformed to toxoids or anatoxin retain their antigen property, and can therefore be utilized in experimental vaccination.

Absence of Bacteriophage in the New-Born.—Pierret and Bilouet examined the meconium of eight new-born infants up to 4 days old. No bacteriophage for Shiga's, colon or typhoid bacilli could be detected even in meconium rich in microorganisms. The bacteriophage content was excessive in the stool of an infant, aged 12 days. The fact may be explained by absence of bacterial growth in the first few days of life.

Improved Pasteurizing Apparatus.—Marmier describes a pasteurizer in which sterilization is performed automatically. No supervision of the apparatus is required.

Bedside Test for Urea in Blood.—The Augustes say that only one drop of the whole blood is needed. After xanthydrol precipitation by the usual technic, the reading is made the third minute. The test is accurate enough for ordinary purposes. The fluid is limpid or more or less turbid.

Common Feature of Golgi's Apparatus, the Cell Nucleus and the Mitochondria.—Hirschler emphasizes that these three are each enclosed in a membrane which is capable of reduction of osmic acid.

Fate of Typhus Virus in Bird Body.—Selivanoff inoculated lice, guinea-pigs and rabbits with brain from birds infected with typhus virus. The findings proved that the vitality and toxicity of the virus diminished during its sojourn in the bird's body. The serum from the infected birds did not contain antibodies.

Action of Atropin on Heart Block.—Meyer's research was on men and dogs injected intravenously with atropin. The dromotropic action of atropin on atrioventricular conductivity, during the stimulation phase, is due to its sympathicotropic action; it exerts besides a direct effect on His' bundle. In two cases with block of His' bundle, no improvement of the atrioventricular conduction was obtained with 1 mg. of epinephrin, while a marked influence was manifest with small doses of atropin. These findings suggest, he says, a more rational treatment of heart block.

Permeability of the Erythrocytes.—Blum and his co-workers found that under the action of carbon dioxid, acids penetrate into the erythrocytes, while bases pass from the erythrocytes into the plasma.

Action of Carbon Dioxid on Development of Hen's Eggs.—Rogalski noted that carbon dioxid injures hen's eggs and interferes with their development. The lesions are the more pronounced the longer the eggs remain in contact, and the higher the temperature of the eggs. The lesions are similar to those from roentgen rays or aging.

The Suprarenals in Epilepsy.—The necropsy findings in two cases of epilepsy showed reduction or absence of lipoid in the cortex of the suprarenal capsules. Popea and Eustatziu assume that the lipoid is utilized for neutralization of toxins produced by the excessive muscular contractions in the epileptic seizures. This would confirm anew the antitoxic action of the suprarenals.

Cholesterolemia in Epileptic Seizures.—Popea and Vicol observed during seizures a diminished cholesterol content of the blood in each of sixteen epileptics. The cholesterol may have been used up during the excessive functioning of the nervous and muscular systems or in destroying the toxins from the exaggerated muscular contractions. Since the seizures were frequent in these cases, the cholesterolemia persisted low in the intervals.

Protein Shock May Restore Vegetative Tonus to Normal.—Obregia and his co-workers induced protein shock, by milk injections, in forty insane patients. The vegetative tonus became normal when it had been previously augmented or diminished. It did not vary if it had been normal before. He queries whether to ascribe this fact to the functional activity of the cell protoplasm and the colloid balance of the body fluids or to assume that the improvement in the vegetative tonus had restored the colloid balance of cells and humors.

Action of Calcium Ion on Vegetative System in Man.—With small doses of calcium (from 0.1 to 1 gm.) injected intravenously, Popescu-Inotesti induced phenomena of sympathetic excitation, namely, tachycardia, hypertension, mydriasis, hyperglycemia or sometimes tachypnea. Injection of large doses (from 1.5 to 4 gm.) caused excitation of the parasympathetic, with bradycardia, miosis, bradypnea. The hypertension in this instance is due to a direct stimulation of the muscle fiber of the vascular wall.

Presse Médicale, Paris

33: 1281-1296 (Sept. 26) 1925

*Influence of Nervous System on Action of Poisons. H. Roger.—p. 1281.
*Artery of Keith and Flack's Node. E. Géraudel.—p. 1283.
*Catarrhal Jaundice. Marcou-Mutzner.—p. 1286.
*Diet for Peptic Ulcer. A. Jarotzky.—p. 1288.
Faure's Technic for the Mikulicz Drain. A. Madrid.—p. 1289.
The Dawn of War Surgery in Antiquity. P. Jeunhomme.—p. 1291.

Influence of Nervous System on Action of Toxic Substances.—Roger injected strychnin in frogs in stupor from the electric shock induced by a Leyden jar. Spasmodic muscular contractions did not appear until thirty-four minutes, and tetanic spasms only after one hour while in the controls this occurred in five and fourteen minutes. When an injection of veratrin was given after the sciatic nerve had been severed, the action of the poison on the gastrocnemius muscle on that side appeared later and was less pronounced than in the muscle of the other side. When the normal muscle has ceased to respond to even very strong excitation, the denervated muscle continued to contract for a few hours. Analogous phenomena were manifest after section of one half of the spinal cord; the muscles of the paralyzed side resisted the action of the poison longer. Obviously, the nervous system exerts a considerable attenuating influence on the action of toxic substances. This may be due to reduction of the sensibility of the muscle to the poison, or to the impeding of the passage of the latter from the blood into the tissues, entailed by the exclusion of the nerve.

Anatomic and Clinical Aspects of the Artery of the Sino-Auricular Node.—Géraudel gives an illustrated description of this artery, emphasizing the connection between functional changes in Keith and Flack's node and a disturbed blood supply. He believes that the artery of the sino-auricular node is a terminal artery, without anastomoses, analogous to arteries in the brain.

Catarrhal Jaundice Not An Infectious Disease.—The onset of the catarrhal jaundice in Marcou-Mutzner's seven cases resembled a colloidoclastic shock. The sudden appearance of fever, joint pains, urticaria, vomiting and asthenia coincided with an intense bile output in the stools. This was followed by bile pigments in the urine. He asserts that the phenomena can be ascribed neither to angiocholitis nor to retention of bile in the biliary ducts. An exaggerated insufficiency of assimilation of protein substances, under various intoxications, induces overproduction of bile in the liver as a defence reaction. Acute swelling of the liver, which occurred in these patients within a few hours, was evidently due to hypertrophy of the overworking hepatic cells. The treatment should aim to arrest the resorption of products of proteolysis; carbohydrates, lactic ferments, curdled milk or yoghurt may influence the intestinal fermentations. Vitamin deficiency should be avoided. Sodium sulphate in small doses in Vichy water seemed to have a favorable action in his experience.

Diet Treatment of Ulcer of the Stomach and Duodenum.—Jarotzky insists that milk should be suppressed in the cases of gastric hypersecretion. White of egg and unsalted butter, given separately, form his special diet for treatment of peptic ulcer. A raw white of egg, not whipped, is given without salt, alternating with fresh unsalted butter. During the eight or ten days of the course the use of water is prohibited. The patient keeps in bed for the time of the treatment. One white of egg in the morning and a tablespoonful (29 gm.) of butter in the afternoon are given the first day. The ration is daily increased by one white of egg and 20 gm. of butter, till ten whites and 180 gm. of butter are given per day. No other food or drug is allowed. The diet appeared more efficient than fasting after gastric hemorrhage. Relief of pain, subsiding of gastric contractions, allowing better chances for healing of the peptic ulcer, followed this diet treatment. Various cereals, vegetables and fruits, cooked in water without salt and passed through a sieve, are given after the eighth or tenth day. This treatment has been successfully applied in several Russian hospitals since 1910, and he says that it has been used in the United States, citing Altshuler and others.

Archivio Italiano di Chirurgia, Bologna

11: 549-923 (July) 1925

*Research on Gastric Secretion. A. Ciminata.—p. 549.
*Recurring Tubal Pregnancy. E. Momigliano.—p. 792.

The Gastric Secretion.—Ciminata devotes 242 pages to his review of previous research on the secretory function of the stomach and his own experiments on dogs, thirteen with a Pawlow stomach pouch. There seems to be a direct connection, he says, between the water content of the food and the amount of gastric juice secreted. The secretion is most profuse with milk and meat, and it occurs earlier. Water alone stimulates secretion, but only for a short time. The acidity seems to depend on the rapidity of the secretion and not on the kind of food, but the peptic potency seems to be determined by the nature of the food—highest with bread, less with meat, and least with milk. The food always contains substances which stimulate secretion, but these substances are locked up in the food. They are released only by the gastric juice, so that gastric digestion requires that the secretion be already under way when the food reaches the stomach. This is usually provided by the psychic gastric secretion, aided further by water, which starts a brief secretion. These two factors release the secretion-inducing substances, and these continue with greater intensity the task of stimulating production of gastric juice. Without "appetite secretion" and without water, food, such as bread, which is not digested so readily as meat and milk, may lie even in the healthy stomach for hours without a trace of digestion. The more intense the psychic gastric secretion, the earlier and more completely the food will be digested. The acidity of the gastric contents depends on the degree of neutralization by mucus, and this in turn depends on the speed of the secretion. With bread, for instance, which has only a comparatively weak and slow secretogenous action, there is time for much mucus to form and thus neutralize the acid. The more rapid the digestion, the sooner the stomach evacuates its contents. There can be no gastric juice, he adds, when chlorin is lacking. The splitting of hydrochloric acid and hydrates seems to occur specifically in the secreting cells.

Recurring Tubal Pregnancy.—Momigliano analyzes sixteen cases of recurring tubal pregnancy operated on at the Rome clinic. One of the cases seemed to be a bilateral tubal pregnancy but the operation demonstrated tubal abortion of an older date on one side, probably several months before. In most cases, the first tubal abortion had caused no appreciable symptoms, or so vague as not to be recognized. In the 314 cases of extra-uterine pregnancy at the clinic since 1913, inflammatory processes or gynecologic operations had preceded it in 65.3 per cent. In 1.9 per cent. there was hypoplasia of the genital organs. No cause for the anomaly could be discovered in 32.4 per cent.

Revista de la Soc. de Med. Interna, Buenos Aires

6: 241-274 (July) 1925

*Posttraumatic Heart Block. R. A. Bullrich and A. Lacroze.—p. 241.
Preliminary Hemoclastic Crisis in Paroxysmal Hemoglobinuria. N. Romano and J. J. Beretervide.—p. 248.
The Protein Reactions of Insulin. G. Peco.—p. 259.
*Sign of Toxic Nature of Rheumatism. S. Libarona Brian.—p. 264.

Posttraumatic Heart Block.—A physician consulted on account of an attack of influenza had found the pulse of the man, aged 43, practically normal. A year later, after a fall from a horse, injuring the left side of the chest, he was unconscious for a day and a half, and there was much coughing, pain and blood stained expectoration for a time, with persisting dyspnea on exertion. Three months after the accident, symptoms of auricular fibrillation and heart block developed, and this condition has persisted for the four months to date.

Differential Diagnosis of Rheumatism.—Libarona Brian states that an infectious rheumatism can be distinguished from a chronic rheumatism of toxic origin by the absence of the exacerbation which the latter usually presents with a change to damp and cold weather and the improvement in dry and warm weather or environment. The rheumatic disturbances in gout are the only exception to the reliability of this barometric differential sign of toxic as distinguished from toxinic rheumatism. In toxic rheumatism the patients are always inclined to be chilly. He has treated a number of patients of the toxic rheumatism type with systematic alkaline injections, and he claims excellent results.

Salvador Médico, San Salvador

4: 709-755 (June) 1925

Radiology in Medical Practice. Rafael Vega Gómez, Jr.—p. 714.
Pathogenesis of Angina Pectoris. E. Fasquelle.—p. 722. C'td.
Sarcoma in Broad Ligament of Girl of 8. V. M. Noubleau.—p. 734.
*A Nervous Form of Malaria. M. Alvarez V.—p. 738.

Cure of Pyloric Ulcer by Gastro-Enterostomy. E. A. Saldaña.—p. 741.
Cyst in the Pancreas. Recovery. E. G. Prieto.—p. 744.
Code of Medical Ethics. Supplement. C'tn.

A Nervous Form of Malaria.—Alvarez relates that a man, aged 55, was brought to the hospital in a comatose condition. He had presented chills and fever for the preceding three weeks, of the tertian type. Then he suddenly lost the power of speaking and of moving his arms and legs. The paresis was accompanied by pronounced exaggeration of the tendon reflexes. There was also trismus, with incontinence of anus and bladder, and dilated pupils. A lumbar puncture was negative, but the blood showed *Plasmodium malariae*. The symptoms began to improve at once after the second injection of quinin. He left the hospital in a month apparently completely cured, but there was retrograde amnesia.

Semana Médica, Buenos Aires

2: 469-536 (Aug. 27) 1925

Penal Aspect of Deforming Injury of the Face. Nerio Rojas.—p. 469.
Twenty-Fifth Anniversary of the Circulo Médico. G. Aráoz Alfaro.—p. 475.
Pathogenesis of Diabetes Insipidus. G. Bosco.—p. 477.
Influence of Various Factors on Action of Insulin. Houssay.—p. 480.
Chronic Arsenic Poisoning from Drinking Water. Fernández.—p. 485.
*Growth Exostoses and Mammary Tumor. Vallino and Macera.—p. 489.
Perirenal Abscess. J. Salleras.—p. 492.
Remote Results of Suture of Ulnar and Median Nerves. Caeiro.—p. 495.
Osteomyelitis of Flat Bones of Skull. Y. Franchini.—p. 497.
Dental Caries in the School Age. A. Casotto.—p. 501.
Test for Perborate in Presence of Borate. L. Rossi.—p. 502.
Present Status of Vaccination Against Tuberculosis. Arena.—p. 503.

Multiple Exostoses and Mammary Tumor.—The mother and one brother presented similar exostoses to those observed on a girl, aged 13, whose left breast was amputated on account of a fibro-adenoma.

Archiv für Gynäkologie, Berlin

126: 1-290 (Sept. 9) 1925

Cartilage in Fundus of Uterus. H. O. Neumann.—p. 1.
Giant Cells in Uterine Cancer. W. Schiller.—p. 11.
*Ovarian Function, Blood Ions and Vegetative System. Schultze.—p. 35.
*Water Metabolism in Pregnancy. H. Runge and R. Kessler.—p. 45.
Sequels of Cesarean Section. E. Klaften and L. Bodnar.—p. 65.
*Site of Placenta and Shape of the Uterus. R. Demme.—p. 92.
*Action of Thyroglobulin in Pregnancy. A. Mahnert.—p. 125.
*Blood Volume in Pregnancy. P. Bohnen and K. Borrmann.—p. 144.
*Painless Labor in Hypnosis. U. Franke.—p. 160.
*Changes in the Circulation from the Menopause and Castration. E. Strassmann.—p. 169.
Vaccine Treatment of Ascending Gonorrhea in Women. P. Schumacher and H. Kliewe.—p. 233.
Sperma and Artificial Fecundation. M. Mettenleiter.—p. 251.

Ovarian Function, Blood Ions and Vegetative System.—Schultze confirms that there are certain relations between the ovarian function and the potassium and calcium content of the serum. This suggests some influence of the corpus luteum on the sympathetic. Without this influence, especially in the amenorrhea of young girls, a predominance of the vagus may appear, with a shifting of the ratio between the ions. The potassium content of the blood serum was in some of these patients as low as 14 mg. per hundred cubic centimeters. An increase of the calcium concentration is less common. He assumes with Dresel that the lowering of the potassium level in the blood serum is associated with an increased concentration of the ion in the tissues.

Water Metabolism in Pregnancy.—Runge and Kessler measured the osmotic (oncotic) pressure of the plasma colloids in pregnancy and the puerperium, using the Schade and Claussen method. The results were compared with the refraction and viscosity of the plasma. The osmotic pressure of the plasma colloids rises in the beginning of pregnancy. It gradually becomes lower after the fourth month, rises suddenly during labor, and falls in the first days after delivery. The changes of the protein concentration of the plasma are only to a certain extent parallel; the specific viscosity varies partly in the opposite sense.

Site of Placenta, Shape of the Uterus, and their Mechanical Import.—Demme describes a characteristic flattening of one side and a convex outline of the other side of the uterus, which are visible through the abdominal wall. If the back of the fetus is situated in the convex part, a coiling of the umbilical cord may be expected. He describes the mechanism of this complication, and reports his investigations on the site of the placenta.

Action of Thyroglobulin in Pregnancy.—Mahnert injected intravenously from 0.03 to 0.05 gm. of iodin-thyroglobulin in pregnant women. Those with edema responded usually with diuresis and marked increase in the elimination of uric acid, urea and chlorids. The blood cholesterol became lower.

Blood Volume in Pregnancy.—Bohnen and Borrmann used Griesbach's congo red method. The blood volume in normal controls averaged 6.4 per cent. of the body weight. In the first half of pregnancy, 7.7 per cent.; in the second half, 7 per cent. The decrease in the second part is chiefly due to the increase in weight.

Painless Labor in Hypnosis.—Franke describes the technic for obstetric hypnosis. Several preliminary hypnoses are necessary before amnesia is obtained. He recommends a combination of hypnosis in labor with administration of 3 c.c. of chloroform. The good or bad example of the other pregnant women influences the results. He obtained in 80 per cent. of the cases a complete success, with absolute amnesia.

Cardiovascular Changes from the Menopause and Castration.—Strassmann found an average increase of 20 mm. of mercury in the blood pressure of women in the menopause or with myomas of the uterus. In 15-20 per cent. of the former group and in 40 per cent. of the latter, it leads to an enlargement of the heart. Frequent hemorrhages lower the blood pressure. Enucleation of the myomas did not influence it. Surgical castration is followed at first by a lowering of the blood pressure—depending on the gravity of the operation. Later on, the pressure rises (average 32 mm. systolic and 15 mm. diastolic) in women who had been previously menstruating. It has no permanent influence in the menopause. Roentgen amenorrhea after an ovarian dose produces no hypertension—probably because the internal secretion of the ovaries continues. Only the deep irradiation in malignant tumors raises the blood pressure and causes enlargement of the heart.

Deutsche medizinische Wochenschrift, Berlin

51: 1599-1640 (Sept. 25) 1925

*The Nervous System and Metabolism. A. Oswald.—p. 1599.
Hematuria. H. Kümmell.—p. 1600. C'td.
*Cause and Treatment of Peptic Ulcer. M. Katzenstein.—p. 1603.
*Hunger Sensation and Gastric Acid. O. Müller.—p. 1607.
Fractional Examination of Gastric Contents. K. Hoesch.—p. 1608.
Physiology of the Upper Duodenum. K. Kaestle.—p. 1610.
*Cholagogues and the Duodenal Tube. Taschenberg and Hofmann.—p. 1611.
*The Blood Sugar in Rabbits. M. Lévai and O. Waldbauer.—p. 1612.
*Pathogenesis of Dysoxidative Carbonuria. J. A. Collazo.—p. 1614.
*Influencing of Diuresis by Hypnosis. R. Heilig and H. Hoff.—p. 1615.
Alimentary Azoturia as Kidney Function Test. H. Steinitz.—p. 1616.
*Action of Certain Drugs on Evacuation of the Stomach. Petrović.—p. 1619.
Portable Apparatus for Urine Examination. Welckenbach.—p. 1620.
*Calcium Treatment of Dysentery. Teodosijevits.—p. 1620.
Immune Diagnosis of Tuberculosis. F. Klopstock.—p. 1621.
Morbidity Statistics in the United States. F. Prinzing.—p. 1624.
Changes in Accident Insurance. Martineck.—p. 1625. C'td.
The Wurtemberg Medical Association. Bok.—p. 1627.
The Climatology Congress at Davos. Von den Velden.—p. 1628.
Habitual Constipation. G. Lepehne.—p. 1638. C'td.

The Nervous System and Metabolism.—Oswald finds that only the patients whose nervous system is disturbed react with hyperthyroidism to administration of iodin or thyroid extracts.

Cause and Treatment of Peptic Ulcer.—Katzenstein reviews the clinical and experimental evidence supporting the theory of a disturbed balance between pepsin and antipepsin. He explains some contradictory findings by pointing out that only a very active gastric secretion can digest living tissue. A loop of intestine sewed into the stomach of dogs is not digested if the activity of the secretion is kept low by a practically meat free diet or by atropin. He advises to give ulcer patients internally a preparation of antipepsin in alkaline solution. A blood transfusion is the best remedy in hematemesis. He says that it acts as a hemostatic, and contributes to the healing of the ulcer by increasing the antipepsin content of the blood. Although a surgeon, he recommends to try medical treatment first, even in indurated ulcers. The best surgical treatment is the Billroth I resection.

Hunger Sensation and Gastric Acid.—Müller found in the majority of patients with a sensation of hunger or hunger pains, a low gastric acidity.

Cholagogues and the Duodenal Tube.—Taschenberg and Hofmann tested the action of various cholagogues (phenylcinchoninic acid derivatives, magnesium sulphate, oil of peppermint and sodium glycocholate), using the duodenal tube. They confirm the action of the remedies, but emphasize the fact that neurotic subjects are wholly unsuitable for these experiments. The secretion is soon arrested in such cases.

The Blood Sugar in Rabbits.—Lévai and Waldbauer found great spontaneous changes in the blood sugar concentration in rabbits. The difference in samples taken on different days from the same fasting animal amounted to 64 per cent. Hence the inconstancy of insulin units determined on rabbits.

Pathogenesis of Dysoxidative Carbonuria.—Collazo found an increased amount of lactic acid in the blood from avitaminotic pigeons and dogs. The urine of these dogs contained lactic acid. This was especially pronounced after exertion. He concludes that lactic acid is one of the components of dysoxidative carbonuria.

Influencing of Diuresis by Hypnosis.—Heilig and Hoff made the diuresis experiment in hypnosis, suggesting pleasant and unpleasant sensations. The former decreased the elimination of water, chlorids and phosphates; the latter increased it. They explain this as secondary to the changes of gastric secretion (hyperchlorhydria with pleasant and hypochlorhydria with unpleasant suggestions).

Action of Atropin and Epinephrin on the Evacuation of the Stomach.—Petrović found more stomach contents after ingestion of 600 c.c. of water and an injection of atropin than with the water alone or combined with an injection of epinephrin.

Calcium Treatment of Dysentery.—Teodosijevits reports excellent results of calcium chlorid in dysentery. He injected 10 c.c. of a 10 per cent. solution twice daily, and added morphin subcutaneously.

Klinische Wochenschrift, Berlin

4: 1849-1896 (Sept. 24) 1925

Lipoids and Metabolism of Cells. M. Rubner.—p. 1849.
*Frequency of Cancer of Lungs. R. Staehelin.—p. 1853.
*Hexose-Phosphoric Acid of the Blood. H. Lawaczeck.—p. 1858.
Roentgen-Ray Diagnosis of Respiratory Organs. Landau.—p. 1861.
*Inhibition of Exudation by Pituitary Extract. Saxl and Donath.—p. 1866.
*Fermentation Acids and Digestive Disturbances in Infants. Catel.—p. 1867.
*Lactic Acid Elimination in Carcinosis. K. Glaessner.—p. 1868.
*Hematology of Rats with Rickets. E. Maurer et al.—p. 1869.
*The Blood in Hypertension. E. Kylin and G. Myhrman.—p. 1870.
*Action of Myrtillin on Depancreatized Dogs. H. Eppinger et al.—p. 1870.
*Herpes Zoster and Chickenpox. E. Lauda and E. Silberstern.—p. 1871.
*Syphilis and Tuberculosis. E. Liek.—p. 1872.
Strontium Treatment. K. Grassheim.—p. 1873.
Distress of the Profession and Academic Medicine. W. Heubner.—p. 1876. Reply. F. Reichert.—p. 1880.
Injection of Peptone in Hemoptysis. E. Schönberger.—p. 1895.

Frequency of Cancer of Lungs.—Staehelin confirms the increased frequency of primary cancer of the lungs since 1912, in Basel, while the general incidence of cancer has not changed. He suggests that tarring of the streets may be one of the possible causes.

Hexose-Phosphoric Acid of the Blood.—Lawaczeck found about 1 mg. of hexose-phosphoric acid per hundred cubic centimeters of blood. Injection of epinephrin causes a lowering of the acid followed by an increase. Insulin increases its concentration, yet a decrease follows. He regards the second phase as the reaction of the organism: secondary insulinemia in the first and epinephrinemia in the second instance. One group of diabetic patients react like normal subjects; the other group in the opposite way. This latter group also shows a paradoxic influence of injections of epinephrin and insulin on the blood sugar. He believes that it represents only a functional diabetes due to a pathologic equilibrium between insulin and epinephrin—not necessarily to insufficiency of the pancreas.

Experimental Inhibition of Exudation by Pituitary Extracts.—Saxl and Donath found that an injection of pituitary extract or of neo-arsphenamin inhibited the exudation due to instillation of mustard oil in the conjunctiva of rabbits. They explain this by the action of these substances on the reticulo-endothelial system.

Fermentation Acids and Digestive Disturbances in Infants.—Catel found that enterococci produce in vitro much more lactic acid than volatile fatty acids. Colon bacilli act the reverse. Lactic acid and its sodium salt do not irritate the bowel, while the other acids cause a strong peristalsis, especially in the small intestine.

Lactic Acid Elimination in Carcinosis.—Glaessner injected mice intravenously with glucose, using about 1 per cent. of their body weight. Mice inoculated with carcinoma responded with an elimination of lactic acid by the urine. The acid was absent in the urine from healthy and sarcomatous controls.

Hematology of Rats with Rickets.—Maurer, Diez and Berendt found constantly myelocytes and normoblasts in rats with experimental rickets.

Potassium and Calcium of the Blood in Hypertension.—Kylin and Myhrman found a slight increase in the potassium content of the serum in 100 patients with essential hypertension. Since the calcium content is lower in these subjects, the K/Ca ratio is increased. Instead of the normal 1.70-2.15, the figures obtained ranged from 2.08 to 2.97. The same change was observed in asthma, gastric ulcer and other vegetative neuroses.

Extracts from Bilberry in Pancreatectomized Dogs.—Eppinger, Mark and Wagner succeeded in lowering the blood sugar and glycosuria in pancreatectomized dogs by oral administration of an extract from bilberry leaves. The action depends, however, on some other circumstances, for the blood sugar increased at times.

Herpes Zoster and Chickenpox.—Lauda and Silberstern had negative results with complement fixation in herpes zoster when using an antigen from chickenpox. They suggest that the positive results obtained by French workers might be due to an epidemic of zoster of chickenpox origin in Paris.

Syphilis and Tuberculosis.—Liek had been irradiating without results a man diagnosed by an authority as suffering from tuberculosis of the skin. The patient had a negative Wassermann reaction and a negative history, but recovered under arsphenamin treatment. A young girl of good family, referred for irradiation of supposedly tuberculous lymph glands in the neck, had a primary sclerosis on the labium majus, which was soon followed by a roseola. He quotes other similar cases of diagnostic mistakes, especially in children with real or supposed surgical tuberculosis.

Medizinische Klinik, Berlin

21: 1445-1484 (Sept. 25) 1925

*Increased Frequency of Hyperthyroidism. J. Wiesel.—p. 1445.
*Mineral Waters in Therapeutics. Wiechowski.—p. 1448.
Symposium on Surgical Treatment of Cancer of the Rectum. O. Nordmann et al.—p. 1451. C'td.
*Insulin Treatment of Exophthalmic Goiter. P. F. Richter.—p. 1454.
*Fattening of Nondiabetics with Insulin. R. Bauer and W. Nyiri.—p. 1454.
Intestinal Changes in Paratyphoid. L. Pick.—p. 1458.
*Influence of Ice-Bag on Gastric Secretion. Von Friedrich.—p. 1461.
Nephrosis in Cases of Joint Disease. Ehrmann and Taterka.—p. 1462.
*Transmission of Herpes Virus to Mice. Luger and Erdstein.—p. 1465.
*Interdigital Eczema. F. Pinkus.—p. 1469.
Recent Works on Cancer. O. Strauss.—p. 1471. C'cn.
The Rockefeller Institute. W. Levinthal.—p. 1480. C'cn.
Tuberculosis of Female Sex Organs. O. Pankow. Supplement.—pp. 1-43.

Increasing Prevalence of Thyroses in Vienna.—Wiesel finds an increased frequency of goiter (especially exophthalmic) and of hyperthyroidism in Vienna. He attributes many of the cases to the indiscriminate use of iodin. He has noted that symptoms of exophthalmic goiter are frequently combined in young girls with chlorotic blood changes.

Pharmacology of Mineral Waters.—Wiechowski observed changes of temperature, coagulation time, and of the reaction to inflammatory stimuli and magnesium anesthesia in animals drinking Carlsbad water over a long period. It is possible that such waters act by changing the mineral metabolism of the organism.

Insulin Treatment of Exophthalmic Goiter.—Richter recommends small doses of insulin in treatment of exophthalmic goiter. He injects 5 units twice daily, later 2.5 units.

Fattening of Nondiabetics with Insulin.—Bauer and Nyiri had excellent results, in underweight persons, with insulin injections. They administered on the first day 5 units twice daily; on the second day 10-15 units, and, beginning from the third day, 20 units. In the second week, 3 injections of 20 units were given daily, together with food representing 60 calories per kilogram of body weight. The average diet contained usually over 100 gm. of proteins; 100-150 gm. of fat, and 250-400 gm. of carbohydrates. The appetite soon began to increase.

Influence of External Application of Ice on Gastric Secretion.—Von Friedrich found that an ice bag applied externally for three hours did not modify the secretion in the stomach.

Transmission of Herpes Virus to Mice.—Luger and Erdstein produced easily encephalitis in mice by intracerebral inoculation of herpes virus. The degeneration of the oxychromatin was perhaps more distinct than in rabbits.

Treatment of Skin Diseases.—Pinkus deals with so-called interdigital eczema. It is in reality a mycosis, as Kaufmann found, although Sabouraud had preceded her in showing that a large proportion of the so-called dyshidrotic eczemas are parasitic affections. He advises drying the skin between the toes, and washing only with diluted alcohol.

Münchener medizinische Wochenschrift, Munich

72: 1625-1670 (Sept. 25) 1925

*Silver Chlorid Coating for Silicic Acid. H. Bechhold.—p. 1625.
Hard Spots in Leg Muscles. F. Lange.—p. 1626.
*Etiology and Pathogenesis of Sciatica. O. Klein.—p. 1629.
The Passing of Chlorosis. A. Hoffmann.—p. 1630.
Treatment of Uterine Myomas. M. Flesch.—p. 1632.
A Syphilis Reaction with Active Serum. Jourdan.—p. 1634.
*Garlic Treatment of Dyspepsia. E. Roos.—p. 1637.
Pharmacology of Garlic. P. Noether.—p. 1641.
Standard Splint for Fractures of the Leg. Rogge.—p. 1642.
Modern European and Old Indian Embryology. A. M. Esser.—p. 1643.
Medicine in the United States. L. Schonbauer.—p. 1645. C'cn.
Sport Injuries. G. Rosenburg.—p. 1647.
Symphyseotomy. F. Benzel.—p. 1651.

Silver Chlorid Coating for Silicic Acid.—Bechhold tested the adsorptive and disinfecting power of silicic acid coated with silver chlorid. It was superior to the best charcoal.

Etiology and Pathogenesis of Sciatica.—Klein confirms in sciatica the frequency of pathologic changes in the territory innervated by the sciatic nerve. This supports Lindstedt's theory as to the reflex origin of the disease.

Garlic in Treatment of Intestinal Diseases.—Roos had good results with a preparation of garlic in ninety-six patients suffering from diarrhea and dyspepsia.

Zentralblatt für Gynäkologie, Leipzig

49: 2177-2224 (Sept. 26) 1925

Classification and Prevalence of Certain Ovarian Tumors. E. Stübler and T. Brandess.—p. 2178.
Acute Ulcer of the Vulva. P. Schugt.—p. 2180.
Retro-Inguinal Alexander-Adams Operation. E. Solms.—p. 2185.
*The Acid Titer of the Vaginal Secretion. F. Heinlein.—p. 2194.
Cauliflower Carcinoma of the Cervix. E. O. Schoch.—p. 2204.
Thoracopagus Tetrabrachius. A. Irsa.—p. 2206.
*To Facilitate the Alexander-Adams. H. Friedrich.—p. 2212.

The Reaction of the Vaginal Secretions During Pregnancy.—Heinlein's research failed to confirm the alleged cyclic fluctuations of the acid titer, but he found wide variations at different times in the same person.

The Alexander-Adams Operation.—Friedrich lays a forceps on the median line, to touch the symphysis' upper margin. A second forceps is then placed over the upper margin of the superior ramus of the os pubis, the tips of the instruments touching at the median line. They form a right-angled triangle, and he makes his incision exactly through the center, beginning 1 cm. from the angle of the triangle. By this means the inguinal ring is opened up without fail, and ample access is obtained for the Alexander-Adams operation. The incision is continued to the limit of the hair. The incisions are thus symmetrical, immaterial whether the women are lean or stout.

Časopis lékařů českých, Prague

64: 1357-1392 (Sept. 19) 1925

*High Colpocleisis. G. Müller.—p. 1357.
Pseudochylous Ascites in Lipoid Nephrosis. V. Ulrich.—p. 1362.
*Venous Pressure. R. Tatterová and J. Šerf.—p. 1364.
Sedimentation Test. A. Fürst.—p. 1371.
The Pirquet Test in Young Children. M. F. Skalník.—p. 1375. C'td.
Criticism of Gye's Discoveries. R. Kimla.—p. 1379. C'cn, p. 1414.
Survey of Czech Literature on Microbiology. G. Gellner.—p. 1381.

High Closure of the Vagina in Operative Treatment of Vesicovaginal Fistula.—Müller advises to return to high colpocleisis in cases of extensive communication between the bladder and the vagina if the capacity of the bladder is reduced. Supravaginal amputation of the uterus or roentgen castration might be added, to prevent formation of calculi.

Venous Pressure.—Tatterová and Šerf obtained in fifty-six patients practically identical results with Pruche's indirect method and with the direct method. Venous hypertension was observed in auricular fibrillation, mitral disease, exophthalmic goiter, syphilitic aortitis and nephritis. Patients with arteriosclerosis of the kidneys had no increased pressure. Electrocardiograms showed in venous hypertension with mitral disease or exophthalmic goiter a predominance of the right ventricle; in nephritis, the left ventricle predominated.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1215-1310 (Sept. 12) 1925

Medical Education in Europe. Comment on Flexner's Book. G. van Rijnberk.—p. 1216. C'td.
*Research on the Bacteriophage. L. K. Wolff.—p. 1220.
*Muscle Tonus and Foot Reflexes. J. W. Langelaan.—p. 1223.
Influence of Semicircular Canals on Gait. P. de Haan.—p. 1238.
Appendicitis in Right Femoral Hernia. Gouwe.—p. 1247.

Bacteriophage Action by Trypsin.—Wolff states that trypsin loses its bacteriophage-like action when diluted to 1:200, while the bacteriophage is still active at this dilution, even after adsorption by kaolin. Heating trypsin abolishes the bacteriophage-like action, while heating scarcely modifies the true bacteriophage action. Other tests have all given concordant findings, he says, suggesting that the bacteriophage-like action of trypsin is due in reality to the actual presence of the bacteriophage in the trypsin. This has been d'Herelle's contention from the first, while others have hailed this action of trypsin as evidence that the bacteriophage is of ferment nature.

Muscle Tonus and the Foot Reflexes.—Langelaan presents arguments to show that the muscular contraction is due to a reflex mechanism, and that the foot reflex is independent of the sympathetic fibers innervating the muscle. The foot reflex persists even after corresponding ramisection. This conception of the mechanism of the foot reflex allows estimation of the latent period and formulation of certain purely physical constants from study of the living muscle.

Ugeskrift for Læger, Copenhagen

87: 791-814 (Sept. 10) 1925

*Nonspecific Protein Therapy. Christoffersen and Polack.—p. 791.
Case of Multiple Cartilaginous Exostoses. Østergaard.—p. 795.
*Masculine Pseudohermaphroditism. P. Dahl.—p. 796.
Dislocation of Both Semilunar Bones. K. Winge.—p. 797.
Expenditures of 350 Danish Families in 1922. Heiberg.—p. 803.

Protein Therapy.—Christoffersen and Polack tabulate the findings in forty three cases of various affections treated with parenteral injection of different proteins. The best results were attained in acute rheumatism and acute hepatitis, and with injections of milk in all the various affections. No benefit was apparent in chronic rheumatism. The only contraindication they admit is a tuberculous process; the protein injection might cause a serious focal exacerbation.

Pseudohermaphroditism.—The mistake in the sex was revealed when epididymitis developed in the supposed young woman. She was contentedly married, and had been sent to the hospital with the diagnosis of incarcerated hernia. No uterus or adnexa could be found.

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LEUKOPLAKIA BUCCALIS

OBSERVATIONS BASED ON A STUDY OF FORTY CASES *

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NEW YORK

While much has been written on leukoplakia buccalis, there is still some difference of opinion regarding certain of its features. The subject was discussed before this section in 1922 by Hazen and Eichenlaub,[1] and since then has been reviewed by Maderna[2] in Italy and by DeForest[3] in this country. My object in again introducing the subject is to give the results of personal experience, especially in their relation to its etiology. The relationship of syphilis as a precursor of the disease and of cancer as a possible complication are perhaps the most important points to consider. Although leukoplakia affects other mucous membranes besides those of the oral cavity, the latter alone will be considered in this communication.

SYMPTOMS

Leukoplakia varies greatly in appearance according to its age and development. In the early stages, the process is superficial and, as a rule, the patient is not aware of its presence. It may appear in the form of minute points, streaks or more often smooth patches of irregular size and shape. It is generally bluish white or slaty, or may suggest the appearance of mucous membrane touched with silver nitrate. Eventually the patches become noticeably thickened, whitish, rough and stiff. The surface may be exfoliated, fissured or ulcerated and the borders more or less inflamed. Bleeding may occur on slight trauma. Subjective symptoms are now in evidence, and interference with speech and eating may occur.

The favorite sites for leukoplakia, according to Maderna, are the dorsum of the tongue and mucous surface of the lips and gums, and only in exceptional cases the hard or soft palate or under surface of the tongue. My experience coincides largely with these statements. In my series of forty cases, the disease affected the tongue in twenty-eight cases, the commisures in twenty-six, and the cheeks in twenty-one cases. Frequently the patches were present on two or three of these regions. In nine cases, the lips (including the mucous surface and vermilion border) were affected, and in two cases the soft palate. When the tongue was involved, the favorite site was the anterior half of the dorsum or sides. The disease was noted eight times as often on the anterior as on the posterior portion. In a single case, it affected the under surface of the tip of the tongue, while in none of my patients were the gums involved. When seen on the buccal mucosa, the disease was generally bilateral. In eight cases in which it was unilateral in all except one, the right side was affected.

A complete absence of subjective symptoms was noted in eighteen of my cases. While present in twenty-one cases, they were generally of a mild type and occasioned by the ingestion of very hot or highly seasoned food or by the use of tobacco. In two cases, the subjective symptoms disappeared after treatment by arsphenamin, although the lesions themselves were unaffected.

ETIOLOGY

Age.—Leukoplakia is essentially a disease of adults. When first seen by the physician, the patient has frequently reached middle age. This was certainly true in my cases, in which the average age at the time of the first visit was 48.4 years. The average duration of the disease, as far as the patients were aware, was 8.7 years.

Sex.—Leukoplakia, while not exclusively a disease of men, shows a striking predilection for the male sex. Cumston[4] states that out of a total of 848 cases collected from the literature, including ten of his own, "there were only thirty females." In my own series, there were thirty-eight men and two women.

Race.—The full blooded negro, I am convinced, rarely suffers from leukoplakia. For the last twelve years, I have had unusual opportunities at the Harlem Hospital to study skin diseases in the negro. In spite of constant watchfulness, I have seen only four undoubted cases of leukoplakia in this race, only two of these patients being full blooded. One of these was observed at Camp Upton in the course of an examination of negro troops. In my statistical study of skin diseases in the negro,[5] a photograph of leukoplakia is included which was taken many years ago by my father, Dr. George Henry Fox. I had never seen the patient myself. In Hazen's[6] study of skin diseases in the American negro, leukoplakia was observed in five white persons and in two negroes.

Occupation.—It would not appear that occupation plays any part in the causation of leukoplakia, with the rare exception of workers such as glass blowers or those habitually exposed to dust and smoke, in whom a direct source of local irritation is evident. In my own cases, twenty-three different occupations were represented, including professional and business men leading a sedentary life, and artisans and others doing manual labor or living outdoors.

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Dermatology and Syphilology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Hazen, H. H., and Eichenlaub, F. J.: Leukoplakia Buccalis, J. A. M. A. **79**: 1487 (Oct. 28) 1922.

[2] Maderna, C.: Leukoplasia Orale, Naples, Detken and Rocholl, 1923.

[3] DeForest, H. P.: Leukoplakia Buccalis, Ann. Surg. **78**: 474 (Oct.) 1923.

[4] Cumston, C. G.: Note on the Pathology and Surgical Treatment of Leukokeratosis Linguae, Ann. Surg. **78**: 469 (Oct.) 1923.

[5] Fox, Howard: Observations on Skin Diseases in the Negro, J. Cutan. Dis. **26**: 67 (Feb.) 1908.

[6] Hazen, H. H.: Personal Observations upon Skin Diseases in the American Negro, J. Cutan. Dis. **32**: 705 (Oct.) 1914.

Syphilis.—The question of the relationship of syphilis to leukoplakia has been the cause of much difference of opinion. The contention is that syphilis acts in some unknown manner as a predisposing cause to the formation of leukoplakia. That the latter disease is not a direct syphilitic manifestation is evident from its histologic structure and its failure to be influenced by antisyphilitic treatment. The essential pathologic process is a hyperkeratinization of the mucosa and a gradual sclerosis of the derma, changes that are not characteristic of syphilis.

There is a mass of evidence in the literature showing that leukoplakia is preceded in a large proportion of cases by a syphilitic infection. The statistics of Fournier[7] show that of 324 patients suffering from leukoplakia, 80 per cent. had previously been infected with syphilis, and in the remaining 20 per cent. this disease could not be absolutely excluded. Max Joseph,[8] on the other hand, found a much smaller percentage (35.2 per cent.) in 100 cases of leukoplakia. Opinions of American textbook writers on dermatology differ concerning the etiologic relationship of syphilis to leukoplakia. Thus, Highman states that "leukoplakia buccalis is almost invariably syphilitic," and Sutton considers that "syphilis is an important factor in many instances." Ormsby says, "It is believed that syphilis may be one of the indirect causes," while Pusey and Stelwagon think the relationship of the two conditions is questionable. Hazen and Eichenlaub consider that "syphilis represents an accidental rather than a causative factor in this disease."

In 65 per cent. of my cases, a previous syphilitic infection was judged to have occurred from the history, Wassermann reaction or presence of tertiary manifestations. While my percentage is not as high as that of some other observers, it is too high to ignore the relationship of the two diseases. It is quite possible that my figures show a smaller proportion of syphilitic infections than was actually present. For instance, in six of the cases giving no history of syphilis, the Wassermann test had unfortunately not been performed. Furthermore, in many cases of syphilis of long duration, the blood Wassermann test is found to be negative. In nineteen of my cases with negative Wassermann tests, the average duration of syphilis had been twenty-two years.

Tending to show that the syphilitic infection had antedated the leukoplakia, eighteen of the known syphilitic patients stated that their leukoplakia had been present on an average about half as long as their syphilis. This, it must be admitted, is not entirely conclusive, as the leukoplakia may have been present, unknown to the patient, for a considerable time.

Whatever effect syphilis may have had in my cases in predisposing to leukoplakia, its action was largely unhampered by treatment. In twenty-six of the syphilitic patients, the treatment administered previous to the appearance of the leukoplakia had been very inefficient. In six cases, there had been no treatment whatever; in sixteen, the treatment had been inefficient and fairly energetic in only four cases.

Desiring to learn the incidence of leukoplakia in a large number of known syphilitic patients, I recently visited the syphilitic clinic of Dr. M. B. Parounagian at Bellevue Hospital. Here the opportunity was offered of carefully examining the buccal cavities of 280 patients in a single afternoon. To my surprise, nine of them showed evidences of leukoplakia, mostly of a mild degree in the commisural region. While even this proportion may seem large, it is astonishing to hear the results of examination of fifty cases of neurosyphilis by Elliott and Stookey.[9] They report that in these cases the "changes in the buccal and lingual mucosa have been as constant a finding as any abnormality of the pupils," and further state that "only one case showed a normal mucosa of the entire buccal cavity."

While there is much evidence to show the frequent relationship between syphilis and leukoplakia, there is excellent proof that many cases of the latter occur without any such association. From a careful study of this subject, Raillet[10] concluded that in at least 15 per cent. neither acquired nor congenital syphilis could be held responsible. Cases are also on record in which persons with long standing leukoplakia have contracted syphilis.

Tobacco.—The synonym "smokers' patches" is frequently used for leukoplakia buccalis and suggests a predisposing cause that is without doubt of the greatest importance. There is such a general agreement on this score that it would be useless to quote much of the literature. Joseph goes so far as to say that he had never seen a patient whom he had learned to know, who at some time had not been a smoker. He also considers that the "severity of leukoplakia depends upon the greater or less use of tobacco."

All of the patients in my series, with the exception of the two women, had been more or less addicted to the use of tobacco. Thirty-five were habitual smokers, twenty-five of these using tobacco to excess, some of them since boyhood. Two of the patients smoked moderately and one occasionally. In addition, four of them chewed tobacco. Cigars, cigarets and pipes were used about equally.

A significant relationship between leukoplakia and the use of tobacco is that the affection is chiefly seen in men, who in general consume much more tobacco than women. The irritating effects of smoking, it may be mentioned, are due not only to the nicotin but to various products of combustion, such as carbonic acid gas, ammonia and creosote.

Alcohol.—The immoderate use of alcohol may be one of the predisposing causes of leukoplakia, especially when it gives rise to marked gastro-intestinal disturbances. In my series of patients, eight used alcohol to excess; nineteen drank moderately and seven occasionally, while five were total abstainers.

Food.—Highly seasoned or very hot food is another source of irritation, which has been thought to play a part in causing leukoplakia. There can be no doubt about the discomfort which this produces in some of the more advanced cases. In answer to the question regarding the use of highly seasoned food, eight of my patients admitted such a predilection.

Teeth.—The irritating effects of decayed teeth, with jagged edges, etc., are emphasized by Hazen and

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[7] Fournier, A.: Des relations de la leucoplasie buccale avec la syphilis et le cancer, Tr. 13 Internat. Cong. Med. **9**: 496, 1900.

[8] Joseph, Max: Leucoplakia of the Mouth and Its Treatment, Am. J. Dermat. **12**: 495 (Dec.) 1908.

[9] Elliott, B. L., and Stookey, P. F.: The Buccal and Lingual Mucosa in Neurosyphilis, M. J. & Rec. (Supp.) **119**: 138 (June 4) 1924.

[10] Raillet, G.: La part de la syphilis dans l'étiologie de la leucoplasie buccale, Bull. et mém. Soc. méd. d. hôp. de Paris **43**: 325 (April) 1919.

Eichenlaub as an important cause of leukoplakia. Bloodgood,[11] in a series of twenty-seven cases, found "dirty, rough" teeth in all but one. According to James,[12] leukoplakia may be due to "dental infection" alone, the writer stating that in some of his cases "no other cause could be found." In thirty-eight of my cases, notes concerning the condition of the teeth were made. In eighteen cases, it was recorded as good or fair and in a similar number as poor or bad. In two cases, all of the teeth had been extracted.

Gastro-Intestinal Disturbances.—Disturbances of the gastro-intestinal tract are considered by many to have an influence in the causation of leukoplakia. Of my patients there were twenty-two who suffered from more or less indigestion, chronic constipation, badly coated tongue, etc.

COMMENT ON ETIOLOGY

Leukoplakia is not itself a syphilitic process. Syphilis, however, precedes the appearance of leukoplakia sufficiently often to conclude that it may be one of the factors in its production. I cannot agree with Hazen and Eichenlaub, who consider syphilis to be "an accidental rather than a causative factor" in this disease. It is undoubtedly true that, in a minority of the cases at least, leukoplakia may occur independently of syphilis. The real cause of leukoplakia, as Maderna states, is still unknown. Whether syphilis may or may not have preceded the appearance of leukoplakia, some local source of irritation can generally be discovered. Such irritants include smoking, chewing of tobacco, the excessive use of alcohol, gastro-intestinal disturbances, the presence of decayed or jagged teeth, and indulgence in very hot or highly spiced food. By far the most important local irritant, in my opinion, is tobacco. This opinion is shared by many other observers and is certainly corroborated by my own experience. Rough and jagged teeth may play a part in causing leukoplakia through mechanical irritation. I feel, however, that too great emphasis has been placed on this form of irritant by Hazen and Eichenlaub, who consider that rough teeth "inaugurate the disease in the vast majority of cases." In the opinion of DeForest, "tobacco and syphilis must be regarded as the most important factors in etiology." He considers that "where syphilis exists, it is probably true that less smoking is necessary to develop leukoplakia." I feel convinced that in the majority of cases one of these two factors is concerned in the causation of leukoplakia buccalis.

RELATIONSHIP TO CANCER

The most important feature of leukoplakia from the practical standpoint is its well known tendency to develop malignancy. This does not mean that the majority of cases will terminate in cancer, especially when the sources of irritation are removed. Many cases of leukoplakia persist for years or even decades without even causing any appreciable discomfort to their possessors. The disease is, however, a continual menace and, if sufficiently irritated, has a potential power for harm. It is eminently proper to class it among the "precancerous" affections. Mantilla[13] has tabulated 566 cases from the literature, reported by some eleven observers, and has found that in 32 per cent. cancer eventually developed. Bloodgood considers that leukoplakia is second only to bad teeth as a cause of cancer of the mouth. In 160 cases of cancer of the tongue in men, Bloodgood found that in forty-one cases leukoplakia had been present and known to the patients for years before the appearance of the cancer. In four of my cases of leukoplakia, undoubted clinical carcinoma was noted. In one, the diagnosis of carcinoma was recorded as probable and in three others as possible.

TREATMENT

It has been stated that leukoplakia occasionally disappears spontaneously, though it has never been my fortune to observe such a favorable outcome. The disease is notoriously rebellious to treatment, as shown by numerous remedies that have been recommended, many of which are hopelessly inefficient. Antisyphilitic treatment in the vast majority of cases will not cause the disappearance of leukoplakia, though it may benefit the subjective symptoms. It is quite possible that the condition may even be aggravated by such drugs as mercury, bismuth and the iodids, through their tendency to produce stomatitis.

Prophylaxis is all important and consists in removing, as far as possible, all causes of local irritation. It would certainly be best to prohibit entirely the use of tobacco. At least, its consumption should be reduced to the lowest possible amount. When the habit of smoking cannot entirely be given up, cigar and cigaret holders or long stemmed pipes should be used. The teeth should be put in order, especial attention being given to the removal of rough edges, badly fitting plates, etc. Alcohol should be used in moderation or prohibited, and a warning sounded against the ingestion of very hot or highly spiced foods. Gastro-intestinal disturbances should receive proper attention. In addition, the frequent use of a bland mouth wash is advisable. The elimination of sources of irritation will not cure the leukoplakia, it is true, but the subjective symptoms will be benefited or completely relieved and the chances of future malignancy will be vastly lessened.

For years, I have taken a decidedly conservative stand regarding the active treatment of leukoplakia. Where prophylactic measures are faithfully carried out and the patient kept under observation, the milder types of leukoplakia require no active intervention. As a matter of fact, few of these patients apply for treatment in the earlier stages, as they are generally unaware of the presence of leukoplakia. Again, in the very extensive cases involving considerable area of the tongue and buccal mucosa, radical treatment is out of the question. I have been pleased to learn the opinion of Bloodgood regarding active treatment in this disease. He states that "as long as the leukoplakia shows no tendency to crack or peel off or form an ulcer there is no indication for any treatment other than the removal of the causes —tobacco, teeth and syphilis." He adds, however, "the moment a patch of leukoplakia splits, scales or desquamates and leaves an ulcer, the area should be excised with the cautery."

Of the many methods recommended for the active treatment of leukoplakia, chemical caustics are among the least satisfactory. The frequent practice of using such a superficial caustic as silver nitrate cannot possibly accomplish any good and is liable to do harm. Among the various physical agents which have been recommended may be mentioned electrolysis, carbon dioxid snow, superheated air, endothermy, the actual cautery, the roentgen ray and radium. The roentgen ray has not proved satisfactory, partly because of the natural difficulty in applying it to the buccal cavity.

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[11] Bloodgood, J. C.: Cancer of the Tongue: A Preventable Disease, J. A. M. A. 77: 1381 (Oct. 29) 1921.

[12] James, W. W.: Some Clinical Cases Associated with Dental Infection, Proc. Roy. Soc. Med. (Sect. Odont.) 14: 47 (Aug.) 1921.

[13] Mantilla, P. L.: Leucoplasies et cancer, Thèse de Paris, 1900-1901.

The two most widely used agents at present are probably radium and the electric cautery. MacKee[14] states that he has "been disappointed with both x-ray and radium in the treatment of this affection." He adds that "small patches can be cured with radium, but they can be cured with greater certainty (although with more discomfort) by means of the galvanocautery." Maderna is one of the warm advocates of radium, the favorable action of which he thinks is heightened by preliminary treatment with arsphenamin. He makes the rather surprising statement regarding radium that "with a few treatments and weak doses," he has cured all his patients. With both radium and the electric cautery, I have had disappointing results in some cases, recurrences taking place after the patches had supposedly been destroyed. In five of my series of cases, radium had previously been used, in three cases by men of experience. In none of them had the result been permanent. Levy[15] concludes that "the results of treatment are unsatisfactory."

CONCLUSIONS

1. Leukoplakia occurs chiefly in men, especially of middle age. It is rare in women and in full blooded negroes.
2. The essential cause of leukoplakia is unknown.
3. Syphilis acts as a predisposing cause in the majority of cases. In a minority of cases, such a relationship can be definitely excluded.
4. Various sources of local irritation act as predisposing causes, including tobacco, alcohol, rough teeth and gastro-intestinal disturbances. Of these, tobacco is undoubtedly the most important.
5. Leukoplakia is a frequent forerunner of cancer, though it may exist for years or decades before the appearance of any malignant change.
6. In the treatment of leukoplakia, prophylaxis is all important.
7. The permanent cure of leukoplakia is difficult, the best agent for this purpose being apparently radium or the actual cautery.

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ABSTRACT OF DISCUSSION

Dr. Otto H. Foerster, Milwaukee: In the relationship of syphilis to leukoplakia, recurring mouth lesions of syphilis must be recognized as of considerable importance. In resistant or insufficiently treated cases of syphilis, they may account for some of the cases of later leukoplakia. Furthermore, hot foods, particularly hot fluids, taken into the mouth injure the mucous membrane and this is a factor in the production of leukoplakia, either the sole factor in some cases or the additional factor of injury acting on structures previously altered by syphilis. My experience in connection with carcinoma of the tongue and leukoplakia has been that carcinoma has occurred only when the leukoplakia was extensive, when it was associated with deforming interstitial syphilitic glossitis, and when there was a definite history of injury. In some of the cases verrucous leukoplakic patches had been present which, by rasplike rubbing against opposing surfaces, had caused injury of the base. Darier described chronic small angular ulcerations occurring in leukoplakic patches, which apparently do not have the potentiality for malignant change found in the fissures of leukoplakia. The floor of these ulcers is smooth and red, is raised to the level of the leukoplakic patch, and is separated from it by a deep folded-in furrow. I agree with Dr. Fox that antisyphilitic treatment for leukoplakia is useless. In the presence of leukoplakia in an evidently syphilitic patient, antisyphilitic treatment should be given or withheld only after consideration of the therapeutic requirements of the patient in general and not of the tongue or mouth alone. Electrothermic coagulation, endothermy, appears to offer a method of treatment which in my limited experience has been satisfactory. I wish to express a word of caution to the effect that any local treatment in leukoplakia, unless it be by a powerful and thoroughly destructive agent, is meddlesome and dangerous and should not be employed.

Dr. J. Frank Schamberg, Philadelphia: I can fully endorse every statement made by Dr. Fox. We ought, however, to differentiate between the terms leukoplakia, which represents smooth, whitish patches, and leukokeratosis. The former has often a preceding change and remains relatively harmless. It is when deeper changes occur in the mucous membrane that the condition becomes dangerous in respect to ensuing cancer. Syphilis is the largest factor in the leukodermias in the mouth. I think we may conceive that the spirochete is lodged in the tongue, as in the skin, and there remains and by reason of being there plays a rôle as the dominant irritant. In the way of irritants, I think smoking plays the greatest part. Hot food may be a factor, but when we see the tremendous number of cases in men over those seen in women we must conclude that tobacco plays a large rôle. We have all seen many cases that clear up when smoking is stopped and recur when it is resumed. We must remember that other conditions in the mouth may be confused with leukoplakia, such as lichen planus and also certain chronic inflammations which may lead to whitish patches, with some thickening of the outer layer.

In regard to treatment, I agree that antisyphilitic treatment has little effect. I have seen some little improvement under syphilitic medication, but have never seen a complete disappearance of the patches without prohibition of smoking. It is most important to prohibit smoking completely because of the danger of cancer. Every case of leukokeratosis of the mouth may be regarded as a precarcinomatous condition. I am inclined to believe that in many cases the carcinoma runs a more benign course than when it is of other origin. I know of one case in which the growth was destroyed by electrodesiccation and the man is well at the end of five years. I agree with Dr. Fox that the roentgen ray and radium should not be employed in the treatment of leukoplakia. They lower the resistant power of the tongue because of the vascular changes. Electrodesiccation is a proper treatment if well carried out, and, in some instances, one may with the electrocautery knife decorticate the tongue. I have had excellent results in one or two cases from this procedure. We should impress on the public the necessity of seeking medical care when these white spots appear on the tongue. As has been stated, they frequently are not observed by the patient. The dentist may see them and refer the patient to a physician, and then a positive Wassermann reaction will be found. The condition may escape recognition for a long time and, if the tongue becomes thickened, it becomes a menace to the patient.

Dr. Henry H. Hazen, Washington, D. C.: I cannot agree with the statement that leukoplakia is very frequently of syphilitic origin, and yet in making this statement we must take care to define very carefully what we mean by leukoplakia. I agree with Dr. Fox that the great majority of cases *involving most of the dorsum of the tongue are syphilitic*, probably over 50 per cent. of the cases, if that constitutes leukoplakia alone. But, on the other hand, if we make a routine examination of the mouth, we shall find that many of the patients of advanced years have a certain degree of leukoplakia on the buccal membranes; if not a definite leukoplakia, a leukokeratosis. I can see no difference between these except one of degree. If one will study these lesions still more closely, one will find that in every case they coincide with the tooth lines, where the buccal mucosa rubs on the teeth. I think this is a most striking thing. If we make a Wassermann test and study these patients for syphilis we shall find that practically none of this group will show syphilis, although a large percentage of those cases showing extensive leukoplakia on the dorsum of the tongue do show syphilis. Another factor that may be partly responsible for the difference is that the series of cases which Dr. Eichenlaub and I published some three years ago were private cases.

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[14] MacKee, G. M.: X-Rays and Radium in the Treatment of Diseases of the Skin, Philadelphia, Lea & Febiger, 1921, p. 480.

[15] Levy, Robert: Leucoplakia Buccalis et Lingualis, Laryngoscope 25:539 (Aug.) 1915.

Another factor of considerable etiologic importance is the possibility of either Vincent's infection or a streptococcus infection in the gum. I have seen a number of cases within the last year in which there was a very definite leukoplakia surrounding Vincent's infection on the gum, and as soon as the teeth were extracted or cleaned up the leukoplakia disappeared. In regard to leukoplakia in the negro, I do not remember whether both of our cases were in full blooded negroes or not. I know one was, and I think both were.

Dr. Herman Goodman, New York: In cases of syphilitic leukoplakia the attending physician finds a four plus positive Wassermann reaction. He institutes antisyphilitic treatment and may push it to the limit. It is not unusual in such instances for the leukoplakia to become much worse. Whether this is due to the syphilis plus the added irritation of the arsenic in the arsphenamin is not known to me. At least one patient under my care passed from an operable condition of the oral cavity to an inoperable one while undergoing the therapeutic test with arsphenamin for syphilitic leukoplakia with beginning degeneration. I have often wondered whether others have seen similar instances.

SOME PROBLEMS IN PUBLIC HEALTH ADMINISTRATION *

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When we take into consideration the comparatively short time that official care of the public health has been recognized in America, with certain noteworthy local exceptions, as a problem of fundamental importance to the citizenry, it is not surprising that the rapid strides that have taken place in this field, especially during the last decade, should be accompanied by difficulties inherent in any widespread campaign that seeks the adoption of a program frequently opposed to customs and habits of life inherited from individualistic forebears. Today the American people as a whole, when the value of rules and regulations affecting public and personal health habits have been convincingly demonstrated, show remarkable willingness to comply with their provisions, even though such compliance may entail a good deal of discomfort and not infrequently physical and mental suffering. There are no other countries in which the almost autocratic powers of constituted health authorities are so generally upheld by the higher courts and sustained by the force of enlightened public opinion. That a noisy and troublesome minority is to be found in practically every community, which, through ignorance, malice or alleged personal conviction, is with difficulty made to comply with well established and fundamental principles underlying the preservation and promotion of public health is a matter for regret but by no means for discouragement.

The influence on the public of the teachings and practices of false prophets and charlatans under a variety of high sounding titles, of unscrupulous, badly informed, commercially minded editors and publicists is indirectly proportionate to the efficiency with which official and unofficial health work is administered and its value convincingly demonstrated; so that the best, indeed the only, weapon with which to fight effectively these opponents of public welfare is good public health work and effective, sane publicity regarding its accomplishments and aims.

A certain number of people even in enlightened communities have always worshiped false gods, and even in this age of scientific progress that number is by no means inconsiderable; but we may be confident that truth will ultimately prevail and that the teaching and practices of those who cannot or will not recognize and acknowledge it will become negligible as a factor in the proper conduct of public health administration.

The difficulty experienced by states and local communities in securing qualified health administrators and adequate staffs of co-workers and subordinates is dependent on a number of well recognized conditions: First is the comparatively recent recognition by the medical profession and public of the fact that public health work as a career is a true specialty for which training, experience and certain fundamental personal qualifications are essential to success. Universities and medical schools are now placing much more emphasis on the importance of a knowledge of hygiene and sanitation as part of the equipment of every well grounded physician, and a number of special schools are industriously turning out men and women technically trained in public health, but the demand for qualified men with a reputation of having made good, especially in the more important positions, is far greater than the supply. Administrative ability in public health and other fields is not a common human attribute. It is usually inborn, but is susceptible of being acquired only in the rough school of experience. Contrary to a frequently expressed opinion, I believe that it is no more uncommon among members of the medical and allied sciences than other professional groups; but the fact remains that, among a large number of persons who by intelligent application may become technically proficient in various branches of public health work, only a very small percentage will prove to possess a high degree of administrative ability, for which reason—in order that the demand for such persons may not only be met but also maintained—public health work must attract a far greater number of persons than is the case at present, and not only a greater number but more of the right type. This cannot be brought about until certain fundamental drawbacks are eliminated or largely reduced. Of these, I may point out the inadequate financial return accorded to the higher grades of public health workers, which averages far less than is available in the private practice of medicine and in the practice of most other learned professions.

It is perfectly true that official public health salaries are showing a distinct tendency to be revised upward, largely for the reason that there is a popular demand for efficient public health work, and a gradual dawning on the consciousness of the public and of state and local governing officials that certain qualifications are essential to its performance, and that the attainment of such qualifications involves the expenditure of a great deal of time, large financial outlay, and often much personal sacrifice, which are justly entitled to an adequate return.

He who elects to devote the fruits of study and experience to the service of public health as his sole or principal life work thereby takes a step which it is difficult or impossible to retrace, should he wish to do so. In this country, the chief administrative health official is usually a physician. His training has been, in the majority of cases, in the general practice of medicine or one of the many specialties. But though knowledge of the medical sciences is the basis on which the qualifications of an efficient health officer rests, a good physician will not necessarily make a good health officer; and, conversely, official health work fully entered on by no means enhances the prospects of suc-

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

cess in medical practice, but, as shown by experience, actually decreases it. In this respect, the health officer's position is quite unlike that of other administrative officials whose tenure of office usually entails little or no sacrifice of business or profession, or only a temporary one, and who has been under no expense of time or money to qualify himself for holding office. Indeed, many of them derive much benefit from the reputation and associations afforded by public service. Yet, notwithstanding these undeniable facts and the overwhelming importance to the welfare of a community of the work of an efficient health officer, when we use our efforts to have an adequate salary granted to him, how frequently are we met by the statement: "Why, we can't pay the health officer as much as the mayor, governor or other official," or "We need the money for parks, lighting, paving, the police and fire department," or "We can't compete with private business."

The health officer giving full time to his work has practically no other means of supplementing his income. He should not be supported in luxury, but in all justice and for the general interest of public health work throughout the country, be granted, as Mr. Hugh Frayne has so well expressed it in regard to labor, not only a living but a saving wage, that he may support himself and family in reasonable comfort, and when incapacitating illness or death ends his earning capacity, have something left for his dependents, besides life insurance, which is unfortunately not usually the case.

Another important deterrent to entrance on public health work is uncertainty of tenure of office, and freedom from political interference with the authority of the health officer. Until the American people with their surpassing genius for efficiency in the conduct of private business insist that a like efficiency be exhibited in the management of national, state and local affairs, which is strictly a business and requires the services of those who are qualified, other than by political and personal affiliation, the health officer will continue to be regarded, as he now so frequently is, as just a member of the great army of office holders, good, bad and indifferent, toward whom the public is so prone to assume an attitude of extreme cynicism, if not suspicion. But that same public, absolutely responsible for the character of its official representatives, seldom takes the trouble by organized and efficient effort to make its influence felt, even in matters so vital to its interest as the preservation and promotion of the public health.

It is not surprising, therefore, that public health service is frequently hampered by the ignorance and selfishness of partisan politicians who are too shortsighted to realize the responsibility they assume in interfering with the machinery for protecting the health and lives of the people. If a deserving health officer cannot count on the organized support of the community that he serves, he is pretty certain sooner or later to find that his office is desired by some one backed by political or personal influence, or both.

Though laws and regulations regarding tenure of office have been enacted in several states and communities, it may be truthfully stated that in the absence of effective public support a health officer may be, and not infrequently is, compelled to relinquish his office because he is persona non grata with certain political or commercial interests, who by constant nagging, interference with his duties and his official staff, and efforts to discredit his work, make it impossible for him to do his work effectively. It is true that if he has made good he can always find another position; but his going means a loss to his community, frequently a good deal of personal sacrifice, and the necessity to work amid strange surroundings in which he is not familiar with the local problems and the attitude of the people toward public health. It takes time for a health officer to establish himself and to do effective work, and the interchange of health officers constantly going on throughout this country between states and cities for one or more of the reasons that I have mentioned makes for general inefficiency in public health work.

A word regarding civil service. I believe that with its well recognized defects, but few, if any, state health officials would voluntarily dispense with the civil service system. In order, however, that it may help and not hinder efficient public health work there should be provisions, certainly in the case of technical appointments, that only such persons should be admitted to examination as are qualified according to the regulations of some responsible central health organization, as, in the state of New York, by the public health council.

While no one will deny the desirability, for various reasons, of appointing to office residents of a state, and, if possible, in the case of local appointments, of a community, it so frequently happens that they are not available that for the higher positions, at least, examinations should be thrown open to nonresidents, if not to noncitizens who are properly qualified. Too much weight should not be placed on the written examination, and there always should be granted to the appointing power a period of tryout of several months by means of provisional appointment. Furthermore, the appointing power should not be restricted to the first man or woman on the list, but be given some choice in selecting the candidate. In general, if civil service officials, both state and local, perform their work with a single eye to efficiency in public service, it will be found, certainly so far as health officials are concerned, that they will be granted full support and cooperation.

CONCLUSION

If I have seemed to dwell too pessimistically on public health service as a career, it is not for the reason that the department over which I preside and which for so many years was administered by my distinguished predecessor, Dr. Hermann M. Biggs, has suffered from the conditions that I have endeavored to outline. Quite to the contrary, since its reorganization and for the last ten years it has not only been left absolutely free to do its work without interference, political or personal, but has had the fullest support, sympathy and cooperation of the various governors and legislatures, irrespective of party affiliations. It is because I know that such a condition of affairs is possible, though not present in many states and local communities, including some in the state of New York, that I have the utmost confidence that its prevalence throughout the whole country is merely a matter of time, which, judging by the progress that is now being made, should not be long deferred.

ABSTRACT OF DISCUSSION

Dr. A. J. Chesley, Minneapolis: Dr. Nicoll's statements are best appreciated by administrative officers who periodically face the people who make appropriations for state, provincial or city health work. In public health work certain objectives are sought, well tried procedures are used, and the results that may be obtained under given conditions are known. When people better understand public health work, they will support it and more willingly suffer the inconveniences Dr. Nicoll mentions in order to obtain better health. But reduction of expenditures rather than better health work seems to be the chief idea of those who make the appropriations. Funds to aid victims of a great disaster or for the control of an epidemic are easily secured, when funds for prevention have been denied. A health officer must keep in mind that he is health officer for the people as a whole and not for only those who approve his methods. He must modify his program according to the availability of resources and to the possibility of results. When he considers health work as a career, he reflects that some of our best health officers have been replaced purely by the political preference of some one who does not even understand the work. As Dr. Nicoll said, a knowledge of local conditions has a great deal to do with success, and even our best qualified men must acquire such knowledge to succeed. The majority of state and city health officers have risen from the ranks. Medical students give attention to preventive medicine and public health, but they learn little of the practical difficulties familiar to those who have survived the school of experience. The student instruction is necessary and valuable, but knowing the whole situation from experience, one hesitates to recommend public health work as a life work. The cults that guarantee everything apparently have more influence with legislative bodies than well qualified medical men, scientists or sanitarians. What wonder we become pessimistic when considering public health work as a life work.

DR. JOHN A. FERRELL, New York: It is exceedingly unfortunate that the evil influences of politics continue to be so destructive to the maintenance of high standards in the field of health. Although we are only in the fifth month of this year, three state health officers who have been rendering creditable service have been removed by governors. In certain instances it has been alleged that the promotion of the political aspiration of the governor prompted removal. In two states, the governor vetoed legislation designed to upbuild the state health service and to increase its usefulness. Four state health officers who have rendered exceptional service fear removal this year. It seems that the time is ripe for the health forces to endeavor to bring about legislation that will give security of tenure to men who equip themselves to serve effectively in public health positions. Another important point has been mentioned. It was my pleasure only two or three weeks ago to accompany a commission of foreign health officials to visit three or four state health organizations. In two small cities and two counties I found that the local health officers are actually receiving larger salaries than are the state health officials, and there is a tendency in some of the counties where city and county are combining resources to pay larger salaries than the states are paying. It would be logical if the salary scale could be so arranged that advancement from the local position to the state position would carry increased compensation. The situation is not satisfactory in many states. Measures that will give security of tenure to competent men and women are needed. Merit in the field of public health should be recognized on a basis commensurate with the training and ability required to meet the requirements.

DR. J. A. HAYNE, Columbia, S. C.: I have been in service fourteen years. I have been referred to this year by a senator from my state as a "flat-tire politician." He has referred to the state board of health as "an eating sore on the treasury of the state." The situation is a very serious one. I have to lecture every year to the senior class of the medical college and point out the beauties and the desirability of entering the public health service as health officers, either municipal or county, or state. The important question to these students is, What is the remuneration? As a man now under our admirable system of medical education cannot probably graduate until he is about 28 or 30 years of age, and usually has a wife and three or four children before he graduates in medicine, the question of remuneration is much more important than it used to be when I graduated. I do not know of any remedy, unless it is that we pledge ourselves in a sort of secret organization that when one fellow goes out of a position we will see to it that a position is opened to him in some other part of the country. That is about the only satisfactory solution. Whether this can be done or not, I do not know, but I am heartily in favor of it.

DR. JOHN E. MONGER, Columbus, Ohio: In regard to the situation under which we operate in Ohio: In 1917 our state board of health was succeeded by a public health council, which was a nonpartisan body of four men; the tenure of office of each member is four years. Two members of this council must be physicians. In 1917 the appointment of the health commissioner was placed in the hands of the public health council. We were very fortunate in having Dr. Allen Freeman in Ohio, who put our perfectly wonderful law in operation. In reorganization of the state government in 1921, Dr. Freeman was displaced from politics and made director of health. The tenure of office is coincident with that of the governor, two years. In public health matters we must teach politicians. We must realize that politicians are always going to control state government, and ideals, whatever they may be, will only in rare instances rule. A health department is not a political asset, but distinctly a political liability and if we can teach the politician that the health department is not a liability but a distinct asset, then we shall go a long way to remove from public health the burden it is under.

DR. A. T. MCCORMACK, Louisville, Ky.: We have permitted ourselves to get at the wrong angle of this discussion. Unfortunately, and necessarily, the remuneration of a health officer is an essential feature, but from the point of view of ourselves and of public interest, the important thing to instill into a young man who desires to enter into this branch is the opportunity for rendering service. If he has not the desire to render service, he ought not to enter the public health field. Necessarily in this age of economic attrition this eliminates a large number of men who would make a desirable addition to our specialty. At the same time, it must be recognized that it is developmental; and if he brings to it the spirit of service, he will secure from it from year to year public confidence and therefore public remuneration. In the meantime, as in every battle and warfare, there will be casualties, and the only regret is that some of the outstanding casualties, like those in war, are among the most effective and efficient of the general officers in the service. They cannot be avoided. I think it rather fortunate that there should be attacks on the health officer, such as will put him in the spotlight and enable all the people to see all the virtues he has. As a rule, the attack of the minority is of violent character because it is political and attempts to influence the public by machine methods and thus defeats its purpose.

DR. MATTHIAS NICOLL, JR., Albany, N. Y.: I was a little surprised by Dr. Monger's remark that public health is not a political asset. This is true only in the sense that the administration of public health in the nation, state and community should be absolutely free from political interference. On the other hand, there is no greater asset to a state or local administration than an efficient, independent health department. In the state of New York the political complexion of the governors and legislators changes about as frequently as the constitution permits, and yet since the reorganization of the state health department in 1914 and up to the present time there has been no governor or legislature that has not supported and encouraged the work of the state department of health, and, in my opinion, greatly to the satisfaction of the people of the state and to the enhancement of their own reputation as their representatives. Unfortunately, this is not usually the case in regard to the conduct of public health in local communities, where it is too frequently regarded as simply a cog in the political machine. Local politicians are notoriously short sighted, usually inclined to act in accordance with what they believe are their immediate political necessities and with but little regard for the welfare of the people and their present and future needs. In regard to the pay, tenure of office and dignity of the position of health officer, we in this country have much to learn from England, where, to be sure, they have had a much longer experience with official public health than we. As an example, and by way of contrast, those who read the *Medical Officer* will recall that not long ago the governing council of an important English city advertised for a health officer at a salary considerably below the rate which the office had been accustomed to receive. As a result the association of English health officers practically blackballed this city, so that it could not possibly obtain an efficient health officer, except on the terms previously allowed. Furthermore, the health officer in England is assured of a life tenure of office while he is able to give efficient service, and no political consideration has any possible bearing on his administrative acts. This is a state of affairs to attain which we must all look forward in this country. It is not impossible of realization by any means, and I think all will agree that there is a decided trend throughout the whole United States in that direction. In the bringing about of this happy state of affairs, some national body such as the American Public Health Association can be of the greatest service. Too little publicity is given to the frequent removals from office, for no other than political reasons, of efficient health officers of large cities and states.

MAXILLARY SINUSITIS

THE PROBLEM OF COOPERATION *

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MINNEAPOLIS

Authors of textbooks on oral surgery and rhinology are at variance on points of etiology, operative procedures and postoperative treatment of infections of the maxillary sinus. These differences of opinion and practice have been reflected in the opinion and procedures of a large number of members of both the medical and the dental professions. Such a condition of affairs is greatly to be deplored.

There is unquestionably a feeling of uncertainty among the majority of members of the dental profession regarding the proper handling of all conditions relative to the antrum of Highmore. Others specializing in exodontia and minor oral surgery confidently undertake the treatment of maxillary sinusitis with a lack of knowledge of the fundamental points of etiology and pathology. Frequently, the possibility of associated infections of the overlying sinuses is not considered, and nasal obstruction as a factor in the causation of sinusitis, or reinfection, is disregarded.

On the other hand, medical opinion and practice present no greater uniformity. A considerable number of rhinologists in their daily practice fail to take into account the fact that dental infection quite frequently causes maxillary sinusitis, or prevents its resolution. Many, however, consider it of some importance, yet merely refer the patients to their dentists for examination and treatment; without taking the trouble to talk the case over with the dentist concerned in order to assure full understanding and complete cooperation. A very small number of rhinologists lay great stress on the importance of dental infection and the possibilities of resolution and cure of chronic maxillary sinusitis by the eradication of dental infection alone, relegating to sinus and nasal surgery and other intranasal treatments a relatively minor rôle. A considerable number of physicians are of quite neutral opinion regarding this problem. It is surprising how often one hears of the advice of the medical man to have the dentist remove a tooth and establish antral drainage through the tooth socket.

On first consideration, these marked differences of opinion seem hopeless of solution, yet I am sure that more thorough teaching of the fundamental facts concerning the development, anatomy, physiology, histology and pathology of the maxillary sinus will provide a basis for better understanding and cooperation.

I know of no better agency for the furthering of this end than the members of the Section on Stomatology. A large number of us are qualified and licensed to practice both medicine and dentistry and, consequently, are in close contact with physicians, rhinologists, dentists and exodontists. Many of us are responsible for the teaching of this borderline subject to dental students, and our responsibility and duty to present the fundamental points clearly and fairly should be fully realized. We are also responsible for the promotion of efficient cooperation between dentist and physician. A few members of our section actively practice rhinology and are in a position to enlighten the nose and throat men concerning the modern methods of dental diagnosis and the handling of dental infection beneath the sinus floor. By this means, increased cooperation is assured.

The most important fundamental is a clear understanding of the development, anatomy and physiology of the maxillary sinus. That it is essentially a paranasal structure from developmental and histologic standpoints should be clearly understood. The frequency of the very close proximity of root ends and antral floors should be thoroughly demonstrated to the dental student in order to encourage careful handling of infection in this region. This may be accomplished by a detailed study of cross sections, dry specimens, roentgen-ray films and clinical observations in the exodontia and oral surgery clinics. A knowledge of the rich circulatory anastomosis of the vessels of the periosteal layer of the antral mucosa, the vessels of the spongy bone of the maxilla and the vessels covering the alveolus and the roots of the teeth, as demonstrated by Strubell, should impress one with the possibilities of spread of infection from the dental area to the sinus, and vice versa.

The gross anatomy of the maxillary sinus, the position of its ostium, its walls, variations in size, its average cubic content and the average surface area of mucosa should be matters of common knowledge. The relationship of the antrum and other nasal sinuses should be studied. Its vulnerability may thus be appreciated.

The appearance of the normal antral mucosa should be known and its histologic structure well understood. With this foundation, a study of the gross and microscopic appearances of infected sinus mucosa will provide a sound basis for the consideration of the various methods of treatment.

The symptoms of acute inflammation of the sinuses should be well known to dentists and physicians. Dentists finding infection of the upper bicuspids and molars should be able to question the patient regarding nasal and other symptoms indicative of sinus infection. By so doing many patients may be referred to the nose and throat specialist. Phelps [1] considers extreme variability in the amount and character of the nasal discharge from day to day to be diagnostic of dental etiology.

The etiology of maxillary sinusitis has been a matter of extraordinary difference of opinion. Dental causation has, for instance, been credited with from 5 to 100 per cent. of the cases by different observers. A brief survey of the literature impresses one with the probable influence of prejudice and personal opinion on the positive statements set forth. The oral surgeon treats many cases of apparent dental origin, whereas the rhinologist sees a majority showing close relationship to nasal

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* Chairman's address, read before the Section on Stomatology at the Seventy Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Phelps, K. A.: Maxillary Sinusitis of Dental Origin, Minnesota Med 5: 299 (May) 1922.

obstruction and recurrent coryzas, or following influenza, and each in turn magnifies or minimizes the importance of dental infection. The percentage statistics so positively expressed are obviously not based on modern methods of dental and alveolar diagnosis. Thorough vitality testing, thermal, electrical (exploring with the dental burr, if necessary) and dental roentgenography, as perfected today, were not sufficiently correlated with maxillary sinus treatment to warrant statistical conclusions. Until a group of well trained men can combine to diagnose carefully, treat, follow up and recheck such cases, statistics had better be kept under cover. They fulfil no useful purpose and mislead members of both the medical and the dental professions. The patients consequently receive less efficient treatment. Therefore, these published statistics may well be forgotten, and in their stead a liberal, broad-minded summary of our present information should be thoroughly taught dental students and the dental and medical professions at large. What does it matter whether dental infection be responsible for 15 or 50 per cent. of antral infections? The important thing ever to keep in mind is the intimate, anatomic and circulatory relationship of the teeth and investing tissues and the maxillary sinus, and the consequent reciprocal relationship of infections in either dental or antral regions. Cause and effect may be a matter of uncertainty in many cases. This is of little moment and should not materially affect the plan of treatment. Thorough examination and diagnosis of the sinus and the underlying dental region should be the rule. Coincidental infection of the antrum and teeth, without definite causal relationship, must be more common than we suspect.

Oral surgeons undertaking the treatment of maxillary sinusitis should appreciate the frequency and importance of nasal origin, septal obstruction and secondary infection of the antrum from disease of the overlying frontal and ethmoidal sinuses. This paves the way to efficient rhinologic cooperation.

Are we giving sufficient attention to the prevention of infections of the maxillary sinus? I think not. Along with the larger problems concerning the prevention of dental caries, pulpal infection and dental periclasia, we must consider the ever present problem of the dentist extracting teeth beneath the antral floor. I am convinced that the average dentist has received but casual training, if any, in the handling of operative exposures of the sinus cavity. Here, as elsewhere, the essentials of good surgical procedure are the careful handling of tissues under direct visual control, and the reduction of trauma to the minimum. How rarely are these fundamentals observed. Many dentists on discovering an accidental perforation of the antrum are unduly alarmed. Others blindly explore and curet the opening or sinus itself, without rule or reason, and in most instances postoperative observation and care are sadly lacking.

Lyons,[2] from a detailed study of a hundred cases of empyema of the antrum of Highmore secondary to the extraction of teeth, concluded that in most instances penetration occurs, first, as a result of the rocking movement of extraction, which tears into the antrum at the point immediately above and in contact with the root, and, secondly, as a result of the failure to extract all the root, with subsequent displacement of the root tip into the antrum on attempting its removal. The average duration of the antral infections and fistulas in his series was 349 days, and the average length of time of previous treatment was estimated to be 170 days. An analysis of this series brings out the facts that the dentists were not equipped to handle the situation, nor sufficiently concerned regarding the persistence of alveolar fistulas. The average duration of treatment was little short of six months, and the various forms of treatment carried out showed a lack of understanding with regard to the pathologic condition and the surgical principles involved in cure. Most cases were treated through the alveolar fistulas, and the various forms of treatment stimulated the formation of an epithelial lining and the consequent permanent opening.

We cannot ignore this situation nor dodge our responsibilities in the matter of the training of dentists to handle these conditions correctly. As long as root ends bear a close relation to the antral floor, accidental perforations will not be infrequent. More or less uniform and standardized methods of taking care of infected teeth should be taught in dental schools. The use of procain should be advocated in order to afford sufficient time for careful operative work under direct vision with good illumination. The necessity of taking steps to reduce traumatism to the minimum, avoiding the fracture of alveolar process or root ends, should be emphasized. Some degree of buccal alveolar process resection is indicated to facilitate the extraction of the tooth and give better access to the diseased area beneath the antral floor. Careful drying of the root sockets will permit accurate visualization of the periapical area, and thorough removal of infected tissue by curettage is made possible. All unnecessary removal of alveolar process beneath the floor of the sinus should be avoided. Forcible irrigation of the sockets should not be done. Gentle irrigation or mopping should be the rule. The dentist carrying out such technic sees what he is doing and is master of the situation when root tips are broken off or the sinus floor is penetrated. He can recovêr the fractured root end, remove the affected tissue, and assure the closure of the perforation by adjusting the gingival margins and suturing. An edge to edge closure is not necessary nor desirable. The operator must recognize the importance of keeping such cases under observation for a week or so, and the patients should be instructed to avoid sucking at the extraction wound.

Dentists should keep constantly in mind the desirability of protecting the sinus from the bacterial flora of the mouth. Tooth socket treatment of an infected sinus is universally condemned. Should temporary drainage or treatment through the alveolar opening be indicated, every effort should be made to seal it between treatments.

Should the dentist be equipped to take care of the cases of acute maxillary sinusitis that do not respond to nasal palliative measures, such as shrinking the mucosa, inhalations, oil sprays, suction and elimination treatment? Probably in cities and towns where rhinologists are in practice, the need of dental cooperation in relieving such conditions would never arise. In certain districts, however, the dentist would seem better able to establish drainage through the canine fossa than is the physician to puncture the antronasal wall. I feel that dentist should be able to cooperate in such conditions when indicated. If, in spite of such careful handling of the dental condition, an acute maxillary sinusitis supervenes or a quiescent chronic condition lights up, the dentist should be well acquainted with the symptoms in order to enlist the services of the rhinologist and secure prompt treatment.

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[2] Lyons, H. R.: Empyema of the Antrum of Highmore Secondary to the Extraction of Teeth, J. A. M. A. 78:486 (Feb. 18) 1922.

A consideration of the treatment of chronic maxillary sinusitis opens up another controversial field. One should in fairness give credit to those who differ with us, particularly if one is teaching the subject to students or practitioners. Phelps has called attention to the beneficial effect on many chronic sinus conditions of careful elimination of underlying dental infection. Whether such dental conditions are primary, secondary, or only coincidental matters little. They should be thoroughly taken care of as a routine measure according to the method previously outlined. Realizing the importance of underlying dental infection, the rhinologist should be vitally interested in the method used for its elimination and should refer his patients to the dentist who will operate according to the best oral surgical practice. The time for taking care of the dental infection may be decided after a consultation of the dentist and the physician.

In most cases of chronic maxillary sinusitis, it would seem advisable first to remove the dental infection and postpone other than simple sinus treatment, for the time being, to await results. A few antral irrigations or a Krause window resection to improve aeration and drainage may establish a cure with complete relief of sinus symptoms. Operative relief of nasal obstruction by submucous resection of the septum may be indicated before radical treatment of the sinus is contemplated. If discharge persists for a month or so, polypoid degeneration of the antral mucosa has presumbaly taken place, and prolonged irrigations or other nasal treatments are futile. Removal of this hopelessly infected mucosa is indicated.

The method of choice will depend on the operator. Many can efficiently remove the infected tissue by means of angular curets by the intranasal route. I myself prefer the modified Caldwell-Luc technic carried out under procain-cocain anesthesia. This permits most efficient visualization, affords good ventilation and drainage, and shortens the postoperative treatment. In discussing operative treatment, many writers have been most unfair in criticism. All intranasal procedures are condemned by some, and wildly exaggerated word pictures of the lamentable plight of patients so treated are frequently drawn. Such criticisms may be justified when directed against ruthless resection of the inferior turbinate, and excessive window resections, but are entirely unwarranted when discussing modern rhinologic practice, which rarely interferes with turbinal structure or physiology. Communications between the inferior meatus and antrum, made low and somewhat posteriorly, are free from any postoperative discomfort. A high anterior opening may involve the nasolacrimal canal.

The canine fossa approach has been severely criticized from the standpoint of tooth injury. If the bony opening is not made too large or too low, the pulpal blood supply should in no way be interfered with, and any nerve impairment should be of a temporary nature and inconsequential. This has been confirmed by recent anatomic studies by Neivert.[3] In many cases teeth beneath the involved sinus are missing, or their removal is indicated, and any possibility of dental discomfort need not be considered. Chronic antral infection of nasal origin with normal and complete underlying dentition should, of course, demand the utmost care if treated by the Caldwell-Luc method. In these cases effort should be made to clear up the condition by intranasal methods.

Some writers opposing the nasal opening beneath the inferior turbinate advocate surgical enlargement of the natural ostium. This would surely interfere with the main blood supply and venous return of the antral mucous membrane.

It becomes obvious that we must be broad-minded in our consideration of this whole subject. Pathetic descriptive statements and appeals have no place in the discussion of the various methods of treatment. We must be liberal and fair to others in order that some common ground may present the opportunity for greater uniformity of opinion and practice. To further this end this contribution is submitted.

La Salle Building.

ABSTRACT OF DISCUSSION

Dr. T. L. Gilmer, Chicago: Dr. Waldron spoke of cooperation between the rhinologist and the oral surgeon in sinus diseases. That is very important. If the disease originates in the nasal fossa, then it is a case for the rhinologist. If it has its origin in a tooth, then it is a case for the oral surgeon. It may be necessary, in order to determine this positively, that a consultation be had with the rhinologist. Teeth are often the cause of maxillary sinusitis. I examined a large number of skulls of cadavers some years ago, and found that a large percentage of them showed signs of maxillary sinusitis, and a considerable proportion were directly associated with infected teeth. Some chronic cases originating in the nose may be treated by the rhinologist by irrigation, but one should hesitate about puncturing the sinus from the nose or elsewhere in the acute stages. If, however, there is chronic infection, whether it is caused by the teeth or whether the disease comes through continuity of tissue from the nose, and if curettement is indicated, the latter is best not done through the nose but through an opening made in the buccal wall of the jaw, the Caldwell-Luc operation. The opening should be sufficiently large that one can see into and readily explore the sinus. An opening through a tooth socket is not a good approach to the sinus. It affords insufficient room to observe the condition of the entire sinus; besides there is greater thickness of bone to be cut away. If the Caldwell-Luc operation is done, a mucoperiosteal flap is first lifted and then the sinus is opened. The buccal wall is easily penetrated by drills and enlarged by burrs, a much easier and more delicate operation than if chisels and gouges are used. After the sinus has been cleaned out, a large opening is made through the inferior meatus of the nose for permanent drainage; it is packed with iodoform gauze, the gauze being brought out through the opening into the nasal fossa. The opening in the buccal wall is at once closed by suturing the mucoperiosteal flap back in place. It seems to me that is the best possible treatment for maxillary sinusitis requiring curettement.

Dr. Robert H. Ivy, Philadelphia: I should like to support Dr. Waldron in what he says about the little damage that is done the teeth in these radical operations for maxillary sinusitis. Assertions have been made that the teeth are damaged by the incisions and the cutting away of the bone around the roots of the teeth. If the bone is removed high enough so as not to expose the roots of those teeth, in most cases no damage is done to them. About two years ago, with the cooperation of Drs. Ridpath, Skillern, Coates and other rhinologists in Philadelphia, I was enabled to make some studies of patients who had had radical operations on the maxillary sinus. Tests that I conducted on the teeth showed that, while the nerve supply might have been interfered with temporarily, yet after a certain number of months, or even less time, sensation almost invariably returned. The assertion that a tooth is dead because the nerve supply is cut off is not true. Injury to the ulnar nerve may cause numbness of the fingers, yet they are not dead; they have a blood supply. The blood supply of the teeth is not cut off in these operations because of the rich anastomosis. In any case, even if the teeth are occasionally destroyed by this operation, it is the only procedure that I know of that will cure these chronic sinus conditions.

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[3] Neivert, H.: Morphologic Variation as a Factor in the Symptomatology of Paranasal Sinus Disease, Arch. Otolaryngol. 1: 367 (April) 1925.

Dr. Carl W. Waldron, Minneapolis: One point I want particularly to make is that this arguing about percentages is futile. The thing to remember, along with a fundamental knowledge of the physiology and vascular relationship, etc., is that infection may spread from one point to another. It must also be remembered very clearly that infection may be coincidental, with very little relationship. Dr. Phelps and I were trained together in nose and throat work. We had, one might say, the radical form of training. Most of our patients with maxillary sinusitis had been treated previously by rhinologists by intranasal and the more conservative methods. We almost invariably performed the Caldwell-Luc operation. Dr. Phelps became associated in Minneapolis with a rhinologist who was particularly impressed with the importance of dental infection. Today Dr. Phelps performs the Caldwell-Luc operation very rarely. He feels that taking care of dental infection will give the patient that opportunity to take care of the infected antrum that has been irritated from time to time. In most cases, of course, he carries out a few intranasal irrigations, possibly a window resection. The results have been very promising. When he changes his opinion so markedly, I feel that there is certainly something in the premise that dental infection will cause the recurrence of nasal sinus infection, or will be the turning point in preventing coryzas (that may develop on account of septal obstruction) from going on to resolution. So, we must remember that sinus infection may be present and yet not be associated with dental infection, and that if there is dental infection beneath an antral floor, good common surgical sense demands its removal.

PATHOLOGIC PHYSIOLOGY OF LIVER IN RELATION TO INTOXICATION AND INFECTION *

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[Editorial Note.—This paper, together with the paper of Dr. McClure, Dr. Mendenhall, and Mildred Huntsinger, and that of Drs. Lyon and Swalm, which follow it, conclude the symposium on "Liver Function." In our last issue we published the papers of Drs. Carlson, Mann and Greene.]

The physiology of the liver is in large part concerned with the remarkable capacity of the organ to select certain substances from the blood and, after various modifications, to store them in its cells, to return them to the blood or to eliminate them with the bile. In this discussion of the pathologic physiology of the liver it seems desirable that special attention be drawn to the ability of the liver to select from the blood stream and fix within itself various substances that are foreign to the normal metabolism of the body.

It is well known that the liver removes certain substances from the blood with such accuracy that impaired elimination of them may serve as an index of hepatic injury. The experiments of Whipple, Peighthal and Clark [1] showed that the dye phenoltetrachlorphthalein may be used as a test of the efficiency of liver function. Rowntree, Hurwitz and Bloomfield [2] point out the relatively slight change in chemical constitution which determines the mode of elimination of three closely related substances. Phenolphthalein is excreted both in the urine and in the bile. Phenolsulphonephthalein, in which the CO group of the former substance is replaced by the SO_2 group, is excreted chiefly by the kidneys. Phenoltetrachlorphthalein, in which hydrogen atoms of the phthalein radical are substituted by chlorin, is specifically excreted by the liver.

After laboriously testing a large number of chemically related dyes in white rats and in dogs, Delprat [3] found one, namely, rose bengal, which is eliminated in both of these animals only by the bile and may be used like phenoltetrachlorphthalein as an index of disturbed liver function. In the present connection the attempt to enumerate all the substances that are known to be excreted in part or wholly by the bile would not be profitable. Copper salts, hexamethylenamin, methylene blue and amyl alcohol, are substances which in this relation have for one reason or another attracted attention. The ability of the organ to select and eliminate these substances is doubtless incidental to some phase of normal metabolism.

SOLUBLE TOXIC SUBSTANCES

From the standpoint of pathology it is especially noteworthy that certain toxic substances introduced into the body have a selective destructive action on the liver. Although phosphorus produces widespread fatty degeneration, its effect on the liver is especially conspicuous. Chloroform introduced into the body by inhalation or by other means brings about a necrosis of cells almost wholly limited to the liver, and when the quantity of the anesthetic is sufficient a very large part of the organ may be destroyed. Graham [4] found that a similar necrosis is produced by iodoform and bromoform, by dichlormethane and tetrachlormethane, and by monochlorethane, monobromethane and mono-iodoethane; that is, by a variety of hydrocarbon derivatives in which halogen atoms are combined with carbon. Why substances of this chemical constitution find lodgment in the liver and cause necrosis is not evident.

There is a large amount of evidence, much of doubtful value, to prove that the liver is capable of destroying certain toxic substances. The subject has been reviewed recently by Gunn.[5] It has been shown by Buys [6] that emulsions made with the liver of the frog and of the rabbit destroy hyoscyamin when incubated with it, whereas the liver of the dog, which is more susceptible to the drug, fails to destroy it. This observation, according to Gunn, has been the starting point of many experiments to determine the power of liver and other tissues to destroy alkaloids. Schirn [6] found that a certain dose of atropin introduced into the peripheral circulation was as effective as twenty times this dose injected into the mesenteric vein. Cloetta and Schirn [6] have obtained evidence that tolerance to atropin acquired by continued administration of the drug to rabbits is accompanied by increased ability of liver tissue to destroy it in vitro. Gunn finds this conclusion in accord with present knowledge, but finds no convincing evidence that congenital or acquired tolerance to alcohol or to morphin is referable to destruction of these substances by the liver. The action of the organ on various toxic substances still excites widespread interest among pharmacologists.

PARTICULATE MATTER

The foregoing brief references show that the liver can remove from the blood certain substances that are soluble in the plasma. It is difficult to determine how this selection is brought about. Anatomists are familiar with the intimate relation of the wide capillaries or sinusoids of the liver to the hepatic cells. The lining endothelium is so delicate that injections made into the vessels readily penetrate between and perhaps into liver cells. A significant peculiarity of some of the cells which line the sinusoids of the liver is their ability to fix and engulf minute particles of varied composition which have found their way into the circulating blood.

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* From the Henry Phipps Institute, University of Pennsylvania.

* Read before the joint meeting of the Section on Pathology and Physiology and the Section on Gastro-Enterology and Proctology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Whipple, G. H.; Peighthal, T. C., and Clark, A. H.: Bull. Johns Hopkins Hosp. **24**: 343, 1913.

[2] Rowntree, L. G.; Hurwitz, S. H., and Bloomfield, A. L.: Bull. Johns Hopkins Hosp. **24**: 327, 1913.

[3] Delprat, G. D., Jr.: Studies on Liver Function, Arch. Int. Med. **32**: 401 (Sept.) 1923.

[4] Graham, E. A.: J. Exper. Med. **22**: 48, 1915.

[5] Gunn, J. A.: Physiol. Rev. **3**: 41 (Jan.) 1923.

[6] Cited by Gunn (Footnote 5).

The stellate cells of Kupffer are especially active as phagocytes. They are regarded as endothelial cells because they form part of the vascular lining and at the same time they are in immediate contact with the liver cells. They have an important part in the fixation of inorganic particles, bacteria, colloid material and perhaps of substances dissolved within the plasma. We are not at present concerned with their relation to other mononuclear cells or to a hypothetic reticulo-endothelial system. It is noteworthy that similar if not identical cells within the spleen ingest all the substances that are taken up by the stellate cells of the liver, but these changes in the spleen occur on a smaller scale and are in some instances at least contributory to those which occur in the liver.

It has long been known that particles of insoluble substances so finely divided that they can pass through the lumina of capillaries are fixed within the liver by phagocytic cells. Carbon particles which have entered the blood stream are held within the liver, and in the advanced pulmonary anthracosis of miners, anthracotic pigmentation of the liver may occur. In unusual instances, anthracotic pigmentation of the liver, as Professor Welch[7] has shown, may cause cirrhosis.

An accurate method for studying the deposition of particulate matter has been devised by Drinker and Shaw,[8] and their studies demonstrate that the liver is the organ chiefly concerned in removing insoluble particles from the blood. The particles which they have selected for investigation approximate in size many of the bacteria that invade the blood stream, and their experiments, which throw much light on the fate of bacteria within the blood, will be considered in some detail.

Manganese dioxid in the form of particles not greater than 1 micron in diameter suspended in acacia solution was injected by Drinker and Shaw into the venous system of cats. If from 1 to 2 mg. of manganese dioxid per kilogram of body weight was injected, manganese in most instances had disappeared from the circulating blood after eighteen minutes. Quantitative determination of the manganese deposited in various tissues after from one to one and a half hours showed that 90 per cent. was recoverable from the liver, lung and spleen, the averages of several experiments for these organs being 38.3, 47 and 4.3 per cent., respectively, whereas the manganese content of kidney, stomach, small intestine, colon, brain, spinal cord and muscle was little if at all increased.

Further study[9] showed that the manganese present in the lungs of the cat rapidly diminished during the first twelve hours following intravenous injection. Simultaneously, manganese in the liver gradually increased and after eighteen hours exceeded that in the lungs. There is evidently a gradual transfer of manganese from the lungs to the liver. Later the quantity of manganese in the liver diminishes gradually, and after a week manganese is almost completely eliminated from the body. Excretion occurs in part by way of the bile, and much of that which is thus eliminated is in the form of undissolved particles precipitable by centrifugalization.

From these experiments it appears that the liver is the ultimate site of deposition of most of the manganese dioxid introduced into the venous system. The preliminary deposition of a considerable part in the lungs of the cat is exceptional, for in other animals which they have tested Lund, Shaw and Drinker[10] found that the liver was the first and chief site of deposit. In rabbits, dogs, guinea-pigs, rats, chickens and turtles, nearly all the injected manganese (in most instances from 80 to 95 per cent.) was recoverable after one hour from the liver, whereas the amount in the lung was very small (usually from less than 1 to 3 per cent.). Hence in almost all vertebrates the liver removes insoluble foreign particles from the circulating blood within a short time after its injection. It is noteworthy that final elimination of manganese from the body is more rapid in the rabbit than in the cat.

When Drinker and Shaw injected manganese dioxid into the venous system of cats, they found after one hour some particles still free within the capillaries of the liver, but the greater part of the magnesium dioxid was within the Kupffer cells, and these were evidently the most effective agents in removing it from the circulation. A few particles were found on the surface of hepatic cells. The quantitative studies that have been described are in large part an index of the functional activity of the Kupffer cells.

COLLOID SUSPENSIONS

The fate of certain substances introduced in colloid form into the circulating blood is almost identical with that of the finely divided material just considered. Numerous studies, especially those made with silver in colloid suspension, have shown that the liver is the chief site of deposition and the Kupffer cells are primarily concerned in removing the metal from the blood. Voigt,[11] using a concentrated suspension, found that the liver contained a very large part of the recoverable silver. In three rabbits, 38, 89 and 63 per cent. of the injected material was recovered from all tissues, and of these quantities 35, 80.7 and 51.8 per cent., respectively, was found in the liver. This observation is evidently widely applicable to heavy metals in colloidal suspension, for Duhamel[12] has found in the liver by chemical analysis a large part of the colloidal platinum. silenium, mercury, copper and iron introduced into the circulating blood of rabbits. Within fifteen minutes after intravenous injection of colloidal platinum, he found the cells of Kupffer full of gray granules, and by quantitative determination two thirds of the injected platinum was recovered from the liver. The spleen contained only traces of the metal. Almost identical results were obtained with colloidal silenium and mercury, the liver containing two thirds of the dose employed and the spleen and kidneys little if any of the metal. When colloidal copper was employed, slightly less than one half of the injected metal was recovered from the liver, and almost all of the remainder was found still present in the blood. Similar evidence of fixation of colloidal iron within the liver was obtained.

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[7] Welch, W. H.: Bull. Johns Hopkins Hosp. **2**, 1891.

[8] Drinker, C. K, and Shaw, L. A.: J. Exper. Med. **33**: 77 (Jan.) 1921.

[9] Drinker, C. K.; Shaw, L. A., and Drinker, K. R.: J. Exper. Med. **37**: 829 (June) 1923.

[10] Lund, C. C.; Shaw, L. A., and Drinker, C. K.: J. Exper. Med. **33**: 231 (Feb.) 1921.

[11] Voigt, J.: Biochem. Ztschr. **62**: 280, 1914; **63**: 409, 1914; **68**: 477, 1915; **89**: 220, 1918.

[12] Duhamel, B. G.: Compt. rend. Soc. de biol. **82**: 724, 1919.

Silica in the colloidal state as a sol in the form of orthosilicic acid kills rabbits when given in large dose, and Gye and Purdy [13] reach the conclusion that it acts primarily on vascular endothelium of the liver and of the renal glomeruli. When given in a small quantity daily, it causes cirrhosis of the liver.

RED BLOOD CORPUSCLES

It is well known that red blood corpuscles that have undergone injury as the result of typhoid fever or other form of intoxication are ingested by mononuclear phagocytes within the spleen, bone marrow, liver and lymph nodes. Whenever the blood of one animal is transfused into another the spleen undergoes enlargement, and the sinuses contain phagocytes distended with erythrocytes. These disintegrate within the phagocyte, and hemosiderin, which gives the characteristic microchemical reactions of iron, is found within the cell as yellowish brown pigment. There is some siderosis of the bone marrow and abdominal lymph nodes, as well, but the liver shows no noteworthy change. Rous and Oliver [14] found that the continued injection of blood into rabbits during two months or more finally brought about an immense deposit of iron containing pigment within the liver. The spleen receives and holds hemosiderin for a time and thus protects the liver, but its capacity to store the iron containing pigment is finally overcome, and iron is deposited in other organs, notably in the liver and kidneys. Masses of pigment enclosed in phagocytic cells are found within the sinusoids of the liver; many Kupffer's cells are filled with pigment; and the liver cells, especially at the periphery of the lobule, contain hemosiderin in great quantity. In the kidney, cells of the cortical tubules take up hemosiderin, and when transfusion has been continued during a long period, the cells of the pancreas and of other organs contain the pigment.

The changes observed closely resemble the remarkable disturbance of iron metabolism named by von Recklinghausen hemochromatosis. In this disease the liver is the seat of an enormous accumulation of iron, which may constitute as much as 7 per cent. of the dried substance of the organ (Anschutz [15]; Hess and Zurhelle [16]).

Another important contribution to our knowledge of this disease both of iron metabolism and of the liver has been made by Mallory, Parker and Nye.[17] They found that the administration of small quantities of copper acetate (0.1 gm.) with the food daily during six months or a year caused changes in the liver similar to those of hemochromatosis in man. The deposition of iron containing pigment in immense quantity in the liver was associated with cirrhosis. Pigment first appeared in the endothelial cells lining the sinusoids and later was deposited in the liver cells. The spleen and bone marrow showed little change, and there was no anemia. Disturbance of iron metabolism was doubtless brought about by the strong affinity of copper for hemoglobin, with the resulting formation of cuprohemol. Exactly how this change causes the iron deposit of hemochromatosis is not clear. It is, however, noteworthy that copper is one of the substances that are eliminated from the body in considerable part with the bile.

This accumulation of iron containing pigment in immense quantity within the liver and other tissues represents a deviation from the normal process of pigment formation and destruction and is doubtless in part referable to hepatic functions concerned with the elaboration of bile pigments. It indicates that secretion of bile is intimately associated with the peculiar capacity of the liver, and especially of its endothelial elements, to select and hold certain iron-containing substances which are normally present in the blood stream.

BACTERIA

In the study of infectious disease it is essential to know what changes occur when micro-organisms enter the blood. The first observations on the fate of bacteria introduced in the blood stream are those of Wyssokowitsch,[18] who injected a nonpathogenic microorganism, *Micrococcus tetragenus,* and a pathogenic form, *Bacillus typhosus,* into the veins of rabbits. By cultural methods he found that they were stored in spleen, liver and bone marrow. Werigo [19] injected anthrax bacilli into the vascular system of rabbits, and after a few minutes found them much more numerous in the liver than in the spleen. Bacilli were found in great number in the lung, in which they were ingested by polymorphonuclear leukocytes. Plate cultures made by Arima [20] showed that bacteria injected intravenously into rabbits disappeared from the blood after about one half hour, and were then most abundant in the liver and present in smaller number in the spleen and bone marrow.

Observations of Bartlett and Ozaki [21] indicate that *Staphylococcus aureus* injected into the circulating blood of the dog and rabbit accumulate in great number in the lungs and are ingested by polymorphonuclear leukocytes. At the same time there is abundant deposition of bacteria in the liver and spleen. Leukocytes containing bacteria rapidly disappear from the lung and are apparently carried to the liver and spleen. Bacteria in the liver and spleen are ingested by endothelial and other mononuclear cells (Kupffer cells), but phagocytosis by polymorphonuclear leukocytes is equally active and finally predominant.

Pneumococci and streptococci, like many other bacteria, when injected into the ear vein of a rabbit in doses insufficient to cause death rapidly disappear from the blood after from two to four hours, and the animal remains in good condition. Bull [22] found that if virulent micrococci are injected in quantity sufficient to cause death within from two to four days, they disappear rapidly so that after two or four hours the blood is sterile or contains only a few bacteria. Within five or six hours, bacteria reappear in the blood and steadily increase until the death of the animal. No gross lesions are found in the organs. With less virulent pneumococci or streptococci in the same quantity, a more chronic type of infection follows. Reentrance of bacteria into the blood is delayed and the number present may be small. The animal lives several days, but finally severe septicemia makes its appearance, and, after a period varying from a few hours to two days, death occurs. The animals have become emaciated, and after death local lesions, such as pericarditis, pleurisy and peritonitis, are usually found. Bull thinks that the progress of septicemia is an accurate index of the severity of infection.

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[13] Gye, W. E., and Purdy, W. J.: Brit. J. Exper. Path. **3**: 75, 86 (April) 1922.

[14] Rous, Peyton; and Oliver, J.: J. Exper. Med. **28**: 629 (Nov.) 1918.

[15] Anschutz: Deutsch. Arch. f. klin. Med. **72**: 411, 1899.

[16] Hess and Zurhelle: Ztschr. f. klin. Med. **57**: 344, 1905.

[17] Mallory, F. B.; Parker, F., and Nye, R. N.: J. M. Research **42**: 461 (Oct.-Dec.) 1921.

[18] Wyssokowitsch, W.: Ztschr. f. Hyg. **1**: 1, 1886.

[19] Werigo: Ann. de l'Inst. Pasteur **8**: 1, 1894.

[20] Arima, R.: Arch. f. Hyg. **73**: 265, 1911.

[21] Bartlett, C. J., and Ozaki, Y.: J. Med. Research **35**: 465 (Jan.) 1917.

[22] Bull, C. G.: J. Exper. Med. **20**: 237, 1914.

The fate of typhoid bacilli injected into the venous system of normal rabbits was next studied by Bull.[23] They disappear from the blood like pneumococci; bacterial counts of plated cultures following injection of one-fortieth of a twenty-four hour agar slant of typhoid bacilli into the ear vein were as follows: after one minute, 10,000,000 per cubic centimeter; after two minutes, 2,500,000; after five minutes, 100,000; after fifteen minutes, 40; after twenty minutes, 1. Further study has shown that agglutination is almost immediate so that clumps of bacilli are found in blood removed from the heart thirty seconds after injection but have disappeared after seven minutes. Tissues of rabbits removed twenty-one minutes after intravenous injection of typhoid bacilli have given colonies per cubic centimeter of crushed pulp as follows: spleen, 2,000,000; liver, 1,600,000; lung, 100,000; mesenteric lymph node, 1,000; skeletal muscle, brain and other tissues, very few. In view of its size, the predominant importance of the liver in removing bacteria is evident. The fate of bacteria fixed in the liver has been studied. A rabbit received in the ear vein one thirty-fifth of an agar slant culture of typhoid bacilli; pieces of liver were removed at intervals and the number of bacteria determined by plate cultures. After three minutes, 1 c.c. of crushed liver pulp contained 12,000,000 bacilli; after fourteen minutes, 6,000,000; after one hour, 700,000; after two hours, 80,000, and after three hours, 1,000. Films prepared from liver, spleen and lungs showed that bacilli were in large part agglutinated into clumps which were surrounded by polymorphonuclear leukocytes. The largest number of leukocytes enclosing clumps of bacilli was found in the organs of animals removed from thirty to ninety minutes after inoculation. After three hours, bacteria within leukocytes had undergone disintegration into granules or had lost completely the power of staining, but even after three hours some unagglutinated bacilli with staining properties unimpaired were found outside of cells.

Fine particles of inorganic material injected into the circulating blood, as the foregoing discussion has shown, tend to accumulate in the liver; but, according to Drinker, Shaw and Drinker, the cat is an exception to this statement, for its lungs in the period immediately after injection contain more manganese than the liver or spleen, but later give it up. Hopkins and Parker[24] made somewhat similar observations when they injected hemolytic streptococci into cats and rabbits. In cats, immediately after injection, bacteria were more numerous in a given weight (0.1 gm.) of lung than of liver or spleen, but in rabbits streptococci were much more numerous in liver and in spleen. Incubated lung and liver exerted a bactericidal effect on the streptococci that they contained, whereas spleen exhibited less bactericidal activity, but in other tissues multiplication of streptococci proceeded uninterruptedly.

There are a number of observations which show that immunization modifies profoundly the ability of tissues to fix bacteria. Since the liver is predominantly concerned in the removal of bacteria from the circulating blood, it is desirable to consider the effect of immunization on this function of the organ. Experiments have shown that certain antibodies act more effectively within the liver than in other tissues.

When rabbits received into the ear vein a large fatal dose of pneumococci, Bull[25] found that the resulting bacteremia persisted until death; but if antipneumococcus serum was injected, bacteria disappeared from the blood within fifteen minutes. Stained preparations made with blood removed from the heart before injection of the serum showed that the micro-organisms were discretely scattered in the film, whereas one minute after injection they were collected into clumps. These clumps were evidently removed by the liver, spleen and lungs, for clumps of diplococci were found in these organs. Little if any phagocytosis occurred within the circulating blood, but leukocytes in considerable number accumulated about the clumps held within the organs named.

Agglutination, however, is not essential to the fixation of bacteria by tissues of the immunized animal, according to Kitawaga.[26] He injected highly virulent pneumococci practically inagglutinable in the serum of an immunized rabbit and inagglutinable in the blood stream as well. These pneumococci injected into the venous system of normal rabbits persisted undiminished, but disappeared promptly when serum from an immunized rabbit was injected intravenously. He reaches the conclusion that some factor other than agglutination is responsible for the disappearance of these virulent pneumococci.

Ingenious experiments of Manwaring and Coe[27] have demonstrated that opsonins or bacteriotropic substances aid phagocytosis of bacteria by fixed cells of the liver. They washed all blood from the portal and hepatic veins by means of Ringer's solution, and then perfused the organ with pneumococci suspended in the same solution. Plate cultures showed that these bacteria passed through the organ undiminished, and addition of normal blood to the suspension caused no change; but the presence of a small amount of immune serum (1:1,000) caused complete retention of pneumococci. Addition of immune serum caused no removal of bacteria when suspensions were similarly passed through intestine, kidney, lungs or isolated hindquarters of the rabbit.

A measure of the capacity of different tissues to take up bacteria has been furnished by Manwaring and Fritschen.[28] They perfused organs of a dog with bacteria suspended in Ringer's solution, and determined by counting of colonies the number of bacteria removed from the suspension after it had been passed through an organ five times. What they call the microbic affinity of different tissues varies widely. Perfusion of a suspension of *Staphylococcus aureus* through the brain and meninges removed only 0.5 per cent. of the suspended bacteria; the intestine removed 4 per cent., and the isolated lung 6 per cent. The spleen, however, removed 60 per cent., and the liver, 80 per cent. The liver, on account of its large size and abundant blood supply, these observers believe, is the dominant factor in the removal of bacteria from the circulation. Its ability to fix different bacteria varies; it has a high affinity for *B. coli* (40 per cent. fixed after five passages) and for *Staphylococcus aureus* (80 per cent.), a low affinity for *B. bisepticus* (15 per cent.) and for

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[23] Bull, C. G: J. Exper. Med. **22**: 475, 1915.

[24] Hopkins, J. G., and Parker, J. T.: J. Exper. Med. **27**: 1 (Jan.) 1918.

[25] Bull, C. G.: J. Exper. Med. **22**: 457, 1915.

[26] Kitawaga, K. J.: Proc. Soc. Exper. Biol. & Med. **12**: 213, 1914.

[27] Manwaring, W. H., and Coe, H. C.: J. Immunol. **1**: 401 (Aug.) 1916.

[28] Manwaring, W. H., and Fritschen, W.: J. Immunol. **8**: 83 (March) 1923.

B. anthracis (25 per cent.), and is almost complete in ability to fix certain micro-organisms such as *B. lactis-aerogenes.* When blood serum from an immunized animal is added to a suspension of the corresponding bacterium, the ability of the liver to fix bacteria is greatly increased, so that micro-organisms which are fixed with difficulty, for example, *B. anthracis* or *B. lactis-aerogenes,* are now removed from the perfused suspension as readily as *B. coli* or *Staphylococcus aureus.* The amount of specific endothelial opsonin in the circulating blood determines the ability of the liver and to a less extent of the spleen to fix bacteria, but does not increase the affinity of other tissues for bacteria.

The foregoing observations have shown that the liver exerts the important function of removing bacteria from the blood stream. The organ is so situated in relation to the portal circulation that it can take up bacteria which under normal or pathologic conditions have penetrated the intestinal wall and thus prevent their entrance into the systemic circulation. It is significant that the activity of this function increases with immunization. The greater selective capacity of the liver tends to make it the final repository of micro-organisms that have temporarily lodged within vessels of the lungs or of other organs.

FOREIGN PROTEIN

The manifold capacity of the liver to remove injurious material from the circulating blood requires the consideration of its relation to foreign protein. Here again it doubtless serves as a buffer to protect the body from material that may find entrance by way of the gastro-intestinal tract.

There are observations which indicate that the liver modifies foreign protein introduced into the body and assists in its elimination. Chiray [29] found that egg white injected into the veins of rabbits appears in the urine after one-half hour, whereas its appearance is much later after injection into the mesenteric vein. In the dog, Langer,[30] found that egg white injected into a vein was demonstrable in the bile by means of the precipitin test after from one-half to one hour, and was still present twenty-four hours later.

In sensitized animals, the liver may modify the effect of the protein used to produce sensitization and may inhibit its toxic action. Falls [31] found that from 0.3 to 0.5 c.c. injected into the jugular vein of sensitized guinea-pigs caused death within from two to five minutes, whereas from 0.8 to 1.5 c.c. was required to produce death within from twenty to thirty minutes when injection was made into the mesenteric vein. Experiments of Manwaring and Crowe [32] indicate that the liver of a sensitized animal can destroy the toxicity of foreign protein. When a mixture of foreign protein used for the sensitization of guinea-pigs together with blood of a sensitized animal was transfused through the normal liver, the mixture retained its ability to produce an anaphylactic reaction; but when the same mixture was passed through the liver of a sensitized animal its power to cause anaphylaxis was lost.

These experiments suggest that the action of the liver on foreign protein is analogous to its action on bacteria, for in both instances the organ diminishes the injurious effect of the foreign substance, and in both instances their protective action is increased as the result of immunization. It is not improbable that the liver acts similarly on many injurious bacterial products which, like foreign protein, act as antigens and induce immunity.

CONCLUSIONS

The foregoing survey of the relation of the liver to intoxication and infection suggests the following statements:

The liver by means of the peculiar endothelium of its sinusoids fixes insoluble inorganic particles, many kinds of organic particles, such as bacteria and substances in colloid suspension, and perhaps by the same means many substances dissolved in the plasma.

With immunization, the liver shows increased ability to fix bacteria and foreign proteins and to render them harmless.

The liver removes from the portal blood many injurious agents which enter from the gastro-intestinal tract, and prevents their entrance into the systemic circulation.

Fixation of injurious substances may cause destructive changes in the liver and permanent lesions of the organ.

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29 Chiray: These de Paris, 1906, quoted by Falls (Footnote 31).

30. Langer, J.: Ztschr. f. exper. Path. u. Therap 3:691, 1906

31. Falls, F. H.: J. Infect. Dis. 22:83 (Jan.) 1918

32. Manwaring, W. H., and Crowe, H. E.: J. Immunol. 2:517 (Aug.) 1917.

THE EVALUATION AND TREATMENT OF DISTURBED LIVER FUNCTION *

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In the present communication we outline some of the principal results of correlated studies on the functional state of the liver of the lower animals and of man. The studies include both means for ascertaining the state of liver function and means for influencing that state. In man the state of liver function was determined by estimating the concentrations of cholesterol, "bile acids." "total pigments" and "bilirubin" of duodenal contents. These contents were obtained both from normal controls and from patients with various diseases including lesions of the liver or its ducts. The studies on animals will be reported in detail at a later date.

It is well established that the liver performs a number of functions of foremost importance to the economy of the organism. It converts protein products absorbed from the intestines into urea. It detoxifies poisons that come to it from a variety of sources. It excretes cholesterol, calcium, pigments and other substances comprising the bile. It plays an important rôle in the metabolism of bile salts and bile pigments. As strange as it is true, little definite knowledge is available as to the state of the functions of the liver in even the most common pathologic conditions which affect that organ. Indeed, there is a paucity of methods which will give an adequate conception of the functional state of the liver of patients except at a time when that state is most seriously deranged. The development of more delicate methods would aid in explaining symptoms occurring during the course of diseases affecting the liver, and also might afford a means for detecting disturbances of the liver in their incipence. For these reasons we undertook the development of such methods.

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One of the most promising means for obtaining information concerning an organ's functional condition is the study of that organ's secretions or excretions. An excretion of the liver, the bile, is poured into the intestines and may be obtained for study by means of the duodenal tube. However, the theoretical objection to such a study is that bile derived from the intestines may have lost its original character through possible action of the gallbladder. But this objection merely adds another phase to the investigation of duodenal bile. In making investigations on man it was found that the experiments could not always be sufficiently controlled to form a suitable basis for arriving at definite explanations for the phenomena observed. For this reason animal experimentation was entered on. The correlated results of these experiments with those on man have explained many of the indefinitely understood phenomena observed in man.

The study of the bile fraction of the duodenal contents of man may be divided into the following five stages:

1. The development of clinically applicable methods for examination of the bile fraction of duodenal contents.
2. Procedures for obtaining duodenal contents; this entails the development of means for stimulating uniformly the flow of bile in normal persons.
3. The establishment of the character of bile found in duodenal contents of normal persons.
4. Ascertaining the immediate source of bile found in duodenal contents.
5. Determining whether, regardless of the immediate source of the bile, the findings in the bile of duodenal contents of normal persons differ essentially from those of persons whose livers were demonstrably affected by disease.

The methods that have been devised represent procedures for estimating in conventional terms the concentrations of various constituents in the bile moiety of duodenal contents. To the present, methods have been developed that will determine the concentrations of cholesterol, bile acids, combined pigments and bilirubin of this bile fraction. All the methods are colorimetric. The cholesterol method [1] depends on the characteristic color developed by a chloroform solution of cholesterol when added to sulphuric acid and acetic anhydrid. The bile acid method [2] depends on the color produced by them in the presence of furfurol and sulphuric acid. A commercial preparation of glycocholic acid is used as a standard. The pigment concentration method [3] is the most simple of all. It consists of mixing duodenal contents with sodium sulphite and acetic acid, filtering and reading against a standard of a solution of chromates, expressing relative concentrations in conventional terms. The bilirubin method [2] is a modification of Ehrlich's diazoreaction, using a commercial preparation of bilirubin as a standard. The indexes of concentration of bilirubin and cholesterol are expressed in milligrams per hundred cubic centimeters of duodenal contents. Pigment and bile acid concentrations are expressed in percentage of arbitrary standard found to approximate the normal. Whether the methods proposed determine only the substances named is open to grave doubt. This is because the chemistry of these substances is highly complex and but little understood. But the methods do permit the determination of four substances persistently present in normal bile and with uniformly reliable results. The methods, therefore, afford a means of ascertaining the normal concentrations of these various constituents. They further give means for determining the influence on such concentrations of diseases affecting the liver; and by comparing the latter with the normal criteria, the functional condition of that organ can be estimated.

The method for stimulating the flow of bile is of foremost importance to the success of liver functional studies as reported here. Obviously, a substance must be used that will invariably stimulate the liver of normal persons to excrete bile. If the substance does not always stimulate the liver, it will be difficult to differentiate between the nonstimulation due to disease and that due to the failure of the substance employed. The pioneer studies [3] of the investigation reported here were carried out on duodenal contents obtained after the introduction of magnesium sulphate solution into the intestines. The use of this drug indicated the results which this method for establishing the functional state of the liver could give. However, it was found that magnesium sulphate [3] and other inorganic salts do not invariably stimulate the flow of bile in normal persons. The variability of the stimulating effect of magnesium sulphate may be explained on the basis of the results of animal experimentation. These results show that by varying the size of the dosage of magnesium sulphate, introduced either into the duodenum or into the blood stream, the excretion of bile by the liver may be increased or decreased; i. e., the biliary function of the liver may be stimulated or depressed. These findings indicate that the biliary function of the liver presumably was depressed in those normal persons in whom the use of magnesium sulphate failed to produce a flow of bile.

The occasional unsatisfactory effect of magnesium sulphate led to the use of various foodstuffs or their digestion products as stimulants to the flow of bile; and it was found that in proper amounts these would always produce stimulation of the biliary function of the liver of normal persons. Oleic acid was selected for use in the present investigation because it invariably produces a flow of concentrated bile in animals and normal persons; it is, also, nontoxic and cheap, and a good preparation is easily obtainable on the market. Furthermore, experimental work on animals shows that oleic acid is a very powerful stimulant to the biliary function of the liver. Large amounts of oleic acid do not depress the activity of this function, while other food products may cause depression. When oleic acid is used, the procedure for collecting duodenal contents from the human subject is as follows: The duodenal tube is swallowed before breakfast on an empty stomach; the metal tip is allowed to pass into the second portion, as determined by fluoroscopy. The subject then reclines on the right side and a mixture of 5 c.c. of oleic acid and 45 c.c. of tap water is introduced into the duodenum through the tube. After about fifteen minutes has elapsed, collection of duodenal contents is commenced by siphonage. As soon as bile appears, the collecting flask is changed and collection carried out for a period of thirty minutes, provided there is no gross change in the color of the bile; as for instance, from pale yellow to dark brown or deep green. If a marked change in color does occur, the collecting flask is again renewed and the duodenal contents collected over a period of the ensuing thirty minutes.

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[1] McClure, C. W., and Vance, E: Boston M. & S. J. **191**: 765 (Oct. 23) 1924

[2] Unpublished observations

[3] McClure, C. W.; Vance, E, and Green, M. C.: Boston M. & S. J. **192**: 431 (March 5) 1925. McClure, C. W., and Vance, E.: Ibid. **192**: 433 (March 5) 1925

Observations on normal subjects and patients without demonstrable hepatic lesions showed that introducing oleic acid into the duodenum always gave rise to a flow of definitely brown bile. The minimum and maximum concentrations of the four constituents of this bile, as determined by the methods outlined, are as follows:

Cholesterol concentration from 30 to 213 mg.
Pigment concentration from 100 to 500 per cent.
Bile acid concentration from 80 to 212 per cent.
Bilirubin concentration from 6.7 to 23.5 mg.

These figures are fully comparable to those obtained in the duodenal contents of normal subjects in whom magnesium sulphate stimulated a flow of bile.[4] On a basis of these observations it is considered that the figures given for the four biliary constituents establish the limits of their normal variation.

During studies on normal and pathologic duodenal contents of man, data have been obtained which throw light on the immediate source of the bile fraction. It is important to know whether the bile to be examined has come directly from the liver; as bile which has passed through the gallbladder may be greatly modified from that derived directly from the liver. For this reason, the immediate origin of duodenal bile will be discussed.

It is well established that, in the presence of chronic cholecystitis, the bile of duodenal contents is often pale yellow. This color has been commonly regarded as indicative of the presence of bile that has come from the liver directly, and without having been subject to the modifying influences of the gallbladder, its presence leads to the assumption that the cystic duct is occluded and that the gallbladder does not function. Our studies show that by certain therapeutic measures the pale yellow bile may eventually be changed to a dark brownish color. One of the measures used to develop this change was duodenal lavage with magnesium sulphate solution. It does not seem probable that this would open the occluded cystic duct, especially if the occlusion were a stone. After repeated lavages, one or more of the solid constituents of the bile, which were normally low at first, often increased to normal amounts before the change from yellow to brown occurred. The same phenomenon was observed in the duodenal contents of patients whose gallbladders had been removed. Furthermore, in a certain stage of convalescence from catarrhal (infectious) jaundice, and during the same period of collection, duodenal contents may change from a golden yellow to deep grass green, and vice versa several times. Deep sage green bile of duodenal contents was obtained from a patient with a marked degree of pigmentation due to chronic hemolytic jaundice, and brick red bile from another such patient.

There is no known basis for explaining these color variations as the result of changing conditions in either the gallbladder or the duodenum, while it is well established that the liver can secrete biles of different colors. Furthermore, deep grass green duodenal contents have been obtained repeatedly from patients whose gallbladders have been removed. On the other hand, it may be maintained that the color variations noted were the result of exposing bile to the air. If this were true, then, the bile pigment present reacted entirely differently from that of normal persons. Color changes in the duodenal contents of normal persons occurred, if at all, only after a number of hours, when the specimens were not exposed to bright light or to bacterial action. Bile of normal character, as determined by the tests employed, has been obtained from patients whose gallbladders were completely excised. The most plausible explanation for these findings is obviously that the bile of duodenal contents comes directly from the liver under the conditions of experiment. For this reason, duodenal contents offer a direct means of examining secretions from the liver. This conclusion is supported by animal experimentation. In animals it has been found that oleic acid and the proper amount of magnesium sulphate solution introduced into the portal circulation actively stimulate the flow of bile even after ligation of the cystic duct.[2] Furthermore, Crohn[5] showed that an animal's gallbladder during digestion does not alternately empty and refill, and that when emptied, the gallbladder refills only very slowly and at irregular intervals.

Table 1.—*Character and Analyses of the Biles of Duodenal Contents Obtained from Normal Persons and Patients*

Case	Cholesterol, Mg. per 100 C.c. of Duodenal Contents	Pigment Concentration, per Cent.	Bile Acid Concentration, per Cent.	Bilirubin, Mg. per 100 C.c. of Duodenal Contents	Color	Diagnosis
	30	100	80	6.7	Brown	Normal minimum limits
1	16	43	42	0.0	Pale yellow	Cirrhosis of liver; no jaundice *
2	Trace	150	21	Trace	Dark green	Hepatic fever after excision of gallbladder *
3	Trace	37	Trace	Trace	Pale yellow	Acute cholecystitis; no jaundice *
4	12	114	30	Trace	Pale yellow	Chronic cholecystitis; calculi; no jaundice*
5	Trace	50	30	4.2	Brownish yellow	Cirrhosis of Banti's disease; no jaundice*
6	55	1,650	..	39.0	Reddish purple	Chronic hemolytic jaundice; icteric*
7	24	40	0	0.0	Pale yellow	Vascular hypertension with dyspepsia
8	17	102	74	1.8	Brownish yellow	Chronic headache (positive skin reaction to lactalbumin)
9	44	67	90	1.9	Yellow	Nausea, vomiting (no lesions found during exploratory laparotomy)

* Diagnosis confirmed on laparotomy.

The first clinical studies by the methods mentioned were carried out on patients with cirrhosis of the liver, in whom the condition varied from that which was well marked to that of apparently mild degree. The great majority of these patients were not jaundiced. The biliary fraction of duodenal contents from these patients was found to vary widely from that obtained from normal persons, which is illustrated by the findings in Case 2 of Table 1. These findings were accepted as fully demonstrating that the procedures used would show disturbances in hepatic function; regardless of whether the bile examined had or had not been modified by action of the gallbladder. Since the procedures showed disturbances in the mild grades of cirrhosis, it was considered that they furnished fairly delicate tests for determining the state of hepatic function. The status of the procedures having been established, they were next applied to the study of the liver functional condition of patients with various diseases. As a result, it was found that disturbances in the functional state of the liver accompanied lesions affecting its parenchyma, such as cancer, and derangements of its circulation, such as passive congestion. It was also found that acute and chronic cholecystitis were accompanied by disturbed liver function. In addition, disturbances in hepatic function have been found in patients presenting gastro-intestinal symptoms and in whom there are few or no signs of organic disease of either the liver, its duct, or the gallbladder. Some of these patients had been subjected to exploratory laparotomy and no intra-abdominal lesions were demonstrated. The symptomatology of these patients will be made the subject of a future communication.

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[4] Unpublished observations. McClure, Vance and Green (Footnote 3).

[5] Auster, L. S., and Crohn, B. B.: Am. J. M. Sc. **164**: 345 (Sept.) 1922.

The establishment of procedures for ascertaining the state of hepatic function afforded an objective means for ascertaining whether or not this state could be influenced by therapeutic measures. One of the measures studied was the introduction of magnesium sulphate solution into the duodenum in the manner proposed by Lyon.[6] For the purposes of this study, patients with cirrhosis of the liver or with gallbladder disease were given duodenal lavage with magnesium sulphate solution once or twice a week, while coincidently the state of hepatic function and the patient's clinical condition were also determined. It was found that this method of treatment was accompanied by decidedly favorable changes in the functional state of the liver in more than half the patients. Coincident with these changes, improvement in the patient's clinical condition occurred. Such findings are well illustrated in the protocol of a representative case outlined in Table 2. The patient was given duodenal lavage with magnesium sulphate solution once a week.

TABLE 2.—*Effect of Intraduodenal Magnesium Sulphate Therapy on Disturbed Liver Function of a Patient with Hepatic Fever* *

Date	Cholesterol, Mg. per 100 C.c. of Duodenal Contents	Pigment Concentration, per Cent.	Bile Acid Concentration, per Cent.	Bilirubin, Mg. per 100 C.c. of Duodenal Contents	Color	Symptoms
11/15	..	...	..	...	Pale yellow	Chills and fever
11/22	Trace	...	..	...	Light brown	Chills and fever, jaundice
11/29	..	...	..	...	......	Chills and jaundice
12/ 6	..	...	..	...	......	No jaundice
12/13	Trace	73	..	...	Light brown	One slight chill
12/27	..	...	..	...	Yellow green	Dyspepsia; chills
1/ 5	Trace	150	21	Trace	Dark green	No chill; dyspepsia
1/10	Trace	80	24	...	Green	Less dyspepsia
1/15	..	...	..	...	Greenish yellow	Some dyspepsia
1/24	Trace	75	28	0.0	Greenish yellow	Epigastric pains
1/31	..	...	..	...	Greenish yellow	No pain; dyspepsia
2/14	16.2	92	..	0.0	Pale yellow	Some dyspepsia
2/21	17.8	60	78	5.0	Brown	No symptoms
2/28	17.2	72	76	6.3	Brown	No symptoms
3/ 7	22.2	160	48	6.4	Brown	No symptoms
4/ 4	25	110	62	7.2	Brown	No symptoms
5/20	No symptoms up to date. Has gained from 125 to 142 pounds (from 56 to 64 kg.). Is back to full time work.					

* The patient, a man, aged 70, had had the gallbladder, with stones, excised three years before examination. Two years before he had had an attack of severe epigastric pain with chills, fever and sweats. For the past eighteen months he had had chills and fever, at first every few months, and for the past few months every week and later nearly every day, but no pain. Persistent dyspepsia was marked.

At the beginning of treatment of the patient represented in Table 2, the state of liver function was much disturbed, and clinical symptoms were marked. It will be observed that liver function ultimately became greatly improved and that the patient returned to a normal state of well-being. This coincidence of improvement in liver function and in clinical symptoms can be obtained in a fair percentage of patients. Such results indicate very strongly that magnesium can influence the functional state of the liver. The findings indicate also that improvement in hepatic function is the cause of clinical improvement. These conclusions find some support in the fact that animal experimentation shows definitely that magnesium can stimulate the liver to functional activity.

In contradistinction to the favorable findings discussed above, it was observed that in some patients liver function was apparently depressed by the introduction of magnesium sulphate solution into the duodenum. Such observations were not properly interpreted until experimental work on animals showed that improper amounts of magnesium sulphate will markedly depress the functional activity of the liver. On the basis of these observations, the depression of liver function in certain of the patients would seem to have been the result of improper dosage with magnesium sulphate. In some of these patients, changing the dosage was accompanied by improvement in the function state of the liver. These findings suggest that magnesium sulphate should be used with some degree of caution. However, at present the proper dosage can be determined by observing the effects of the drug on the functional state of the liver. Unfortunately, this tends to limit the usefulness of an apparently efficient therapeutic measure to those physicians who possess the special equipment necessary to determine the functional activity of the liver.

SUMMARY

Procedures have been devised for estimating the functional condition of the liver. These procedures consist of stimulating the liver with oleic acid and then obtaining the resultant bile from the duodenum by means of a tube. This bile is inspected for its color and analyzed for the concentrations of four of its constituents, which for purposes of description are called bilirubin, total pigments, bile acids and cholesterol. Neither the indefiniteness of the chemistry of these constituents nor the immediate origin of duodenal bile is of great moment as regards the clinical value of the findings. However, results obtained show that duodenal bile has suffered little, if any, modification by action of the gallbladder, and that the analytic methods are uniformly reliable.

The results obtained show definitely that magnesium sulphate has a pronounced effect on the functional activity of the liver in man and animals. This drug will either increase or depress that activity, depending on the amount reaching the liver. Further, the results indicate that the drug can modify favorably a functional state of the liver which has been deranged by disease, and that the favorable modification produces amelioration of clinical symptoms. For this reason, its use under properly controlled conditions is considered to be an efficient therapeutic measure. Unfortunately, the use of the procedures either for determining the state of liver function or for the therapeutic use of magnesium sulphate requires a considerable amount of experience in order to obtain good results.

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[6] Lyon, B. B. V.: Diagnosis and Treatment of Disease of Gallbladder and Biliary Ducts, J. A. M. A. 73:980 (Sept. 27) 1919.

THE THERAPEUTIC VALUE OF NON-SURGICAL DRAINAGE OF THE BILIARY TRACT *

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During the past decade, a number of noteworthy contributions have furthered the earlier recognition and more rational treatment of certain diseases involving the liver, gallbladder, gall ducts, pancreas and duodenum. Our knowledge of the physiology of the liver, gallbladder and pancreas is becoming more exact, although much remains mazed in speculation.

In this paper we aim to emphasize the fact that disease of the gall tract is a manifold and composite disease in which many organs are intimately or remotely involved. For many years, too great emphasis has been laid on the gallbladder as the chief offender. Until recently, we have not clearly enough recognized the concurrent infection and degenerative changes in the liver, bile ducts, pancreas and intestines which often play a prominent rôle in gall tract disease and produce a widely varying digestive complex.

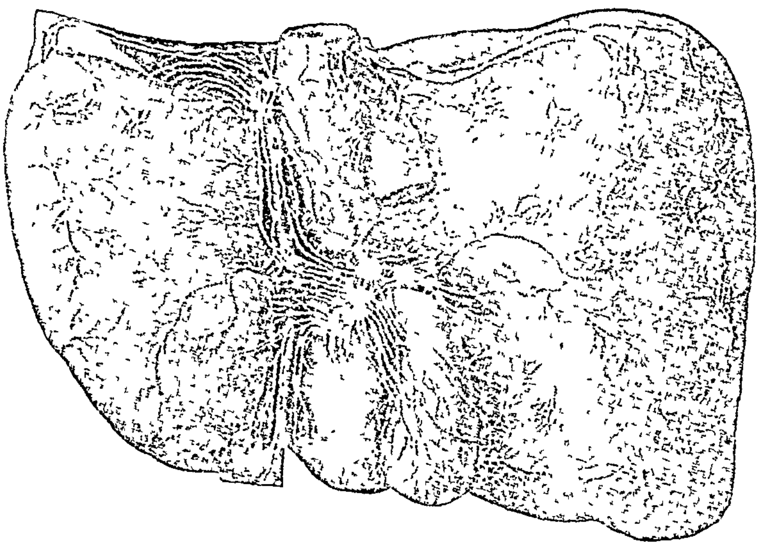

Fig 1.—Lymphatics of the liver and gallbladder, posterior view; first vicious circle in gall tract disease.

To understand the protean nature of gall tract disease, it is important not only to recognize the close anatomic contacts that exist between the stomach, duodenum, pancreas, liver, gallbladder, gall ducts and certain portions of the colon, but also to realize the intimate interrelationship for producing or transplanting disease that exists between these organs because of their blood, lymph and nerve supply. The spleen, likewise, must be considered in connection with the portal system.

Careful students of this subject will do well to follow closely the recent contributions of Graham, Heyd, Rous and McMaster, Mann, Rosenow, Whipple, Boyd, Aschoff, Westphal, Pribram, Chiray, Matsuo and others.

Eight years ago, the procedure now known as nonsurgical drainage of the biliary tract was introduced. It was found that a more careful plan of examination of the mixture of fluids recovered (liver, pancreatic and gastroduodenal juices) by gross inspection, but more importantly by proper microscopic, chemical and bacteriologic study, supplied evidence, which, when added to the usual fundamental methods of diagnosis, served often to clarify an obscure diagnostic problem. When the previously recommended technic [1] is carefully and intelligently carried out, it is of great diagnostic value, and will disclose during the second and third decades, many cases of early gall tract disease which ordinarily do not progress to the more definite clinical picture common to the fourth and following decades.

Van den Bergh's,[2] Fouchet's,[3] Meulengracht's [4] or Bernheim's [5] determination of bile pigment in the blood, and Rosenthal's [6] test for liver function are of differential diagnostic value in gall tract disease.

The roentgen ray, in expert hands, can furnish diagnostic evidence of great value, but when positive usually represents late pathologic changes.

Graham's [7] recently introduced method of cholecystography is a distinct advance in roentgen-ray diagnosis but it, too, gives far more definite evidence of an established pathologic condition of the gallbladder than it can furnish in the earlier breeding period of the disease; nor does it greatly inform us regarding disease of the ducts, and less of the liver.

This method, moreover, has some disadvantages still to be overcome. In addition to the sometimes severe reactions that followed intravenous use of sodium or calcium phenoltetrabromphthalein, now lessened by using the iodin halogen,[8] recently appearing experimental studies [9] have indicated a potential or actual damage to liver cells and tissue in addition to a local phlebitis, which has followed the intravenous use of various dyes.[10]

DIFFICULTIES IN DIAGNOSIS

Acute intra-abdominal disease, although often requiring astute differential diagnosis, in no sense offers the diagnostic problem common to chronic gastro-intestinal disease. In acute disease the intra-abdominal crisis often concerns predominantly one organ; in chronic gastro-intestinal disease there is rarely ever a distinct clinical symptomatology involving one organ alone.

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[*] Read before the joint meeting of the Section on Pathology and Physiology and the Section on Gastro Enterology and Proctology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

[1] Lyon, B. B. Vincent: Non-Surgical Drainage of the Gall Tract, Philadelphia, Lea & Febiger, 1923, p 300.

[2] Van den Bergh and Snapper: Berl. klin. Wchnschr. **42**: 1081, 1915. Van den Bergh: Presse méd. **29**: 441 (June 4) 1921.

[3] Fouchet, A Compt. rend. Soc. de biol. **80**: 826, 1917.

[4] Meulengracht, E.: Deutsch. Arch. f. klin. Med. **132**: 285 (July) 1920.

[5] Bernheim, Alice R.: Icterus Index (a Quantitative Estimation of Bilirubinemia), J A. M. A. **82**: 291 (Jan. 26) 1924.

[6] Rosenthal, S M: J. Pharmacol. & Exper. Therap. **19**: 385 (June) 1922; Phenoltetrachlorphthalein Test for Hepatic Function, J. A. M. A. **83**: 1049 (Oct. 4) 1924.

[7] *Graham, E. A, and Cole, W. H.:* Roentgenologic Examination of Gallbladder: New *Method* Utilizing Intravenous Injection of Tetrabromphenolphthalein, J. A. M A **82**: 613 (Feb. 23) 1924.

[8] Graham, E. A; Cole, W. H., and Copher, G. H.: Cholecystography, J. A. M. A. **84**: 1175 (April 18) 1925.

[9] Ottenberg, Reuben; and Abramson, H. A.: Production of Liver Necrosis by Tetrachlorphenolphthalein and Tetrabromphenolphthalein, J. A. M. A **84**: 800 (March 14) 1925.

[10] *Through the courtesy of Dr. H. R. Hartman* of the Mayo Clinic, we have learned that the oral administration of tetrabromphenolphthalein gives as satisfactory shadows of the gallbladder with negligible reactions. He believes that the dosage used, from 5 to 7 gm. in formaldehyd hardened capsules, is far in excess of the amount required.

A careful diagnostic survey will usually disclose multiple and interlocking disease of mouth and appendages, stomach, duodenum, gall tract, pancreas and intestine. Often disease or disorder of the nervous system, or of the cardiovascular-splenic-renal systems, or a disturbance in metabolism or endocrines will play a part either as contributing factors to or sequelae of chronic gastro-intestinal disease. Focal infection in tonsils, teeth, sinuses, lungs or bronchi, gallbladder, appendix, colon, prostate and pelvic organs, less frequently acute infectious disease flooding the circulation with bacteria, often initiate such chronic disease.

TOTAL DIAGNOSIS

Therefore, total diagnosis of chronic gall tract and associated disease, especially during the breeding period, is based on complete and methodical history and physical examination. This, when properly carried out and competently analyzed, furnishes a provisional diagnosis based on previous experience in clinical medicine. Sometimes, however, this is unreliable, and always incomplete.

Final diagnosis must be developed and proved by: (*a*) fractional gastroduodenal study; (*b*) biliary-pancreatic tract drainage study; (*c*) cardiac, hepatic, pancreatic, renal function tests; (*d*) intestinal motor function test to carmin, or to barium progress meal; (*e*) routine but complete study of feces, urine, blood, and less often sputum and saliva; (*f*) blood chemistry and serology; (*g*) general bacteriology, less frequently transplanted through animals; (*h*) expert roentgen-ray study; (*i*) various special tests; (*j*) in the very occasional case, operative exploration, which may become necessary to establish final accuracy of diagnosis.

DIAGNOSTIC BILIARY DRAINAGE

Nonsurgical biliary drainage, in its diagnostic conception, was based on Meltzer's "law of contrary innervation."[11] As applied to the biliary tract, this law of Meltzer's has been repeatedly challenged because many experimental physiologists cannot demonstrate its validity or even agree in their findings. We have elsewhere pointed out certain sources of error that must be overcome.

We believe that this law is fundamentally correct because of the accumulated clinical and laboratory evidence from more than 14,000 drainages. Furthermore, we have the testimony of Sachs[12] of Nebraska, Pribram[13] of Austria and Matsuo[14] of Japan that they have visualized the gallbladder expelling its contents as a result of intraduodenal stimulation with magnesium sulphate and peptone. And again, we have proof of the gallbladder emptying tetrabromphenolphthalein, using Graham's method, coupled with intraduodenal magnesium sulphate, as shown by D. N. Silverman,[15] C. R. Comstock,[16] H. M. Eberhard[16] and others.

TRANSITION FROM DIAGNOSTIC TO THERAPEUTIC PROCEDURE

Following the performance of repeated diagnostic drainages on the first groups of patients we studied, we were impressed by the striking clinical improvement, both subjective and objective, that often took place. This gave rise to the hope that in properly selected cases of gall tract disease, something definite might be accomplished therapeutically if a systematic course of frequent drainages could be given.

Experience proved that the response of many patients was most gratifying to drainage alone, although critics queerly asserted that much of this was due to a psychic reaction, ignoring the significance of the positive objective findings drained out in the bile and the various laboratory control checks. Gradually a more common sense combination of many nonsurgical measures was added with increasing success. Reports of series of such cases so treated have been published.[17]

The successful crux of the therapeutic problem lies in the proper selection (after thorough study) of patients in various stages of gall tract and associated disease, for whom appropriate surgical, nonsurgical or combination methods are adapted.

Upper right quadrant surgery is the most difficult abdominal zone to work in and requires experience, expert technic and sound surgical judgment.

Recent attention was directed to this aspect of the subject in a review[18] of a series of our cases in which operations were performed by first class surgeons in which the immediate mortality was 10 per cent. and there were serious hospital complications in 33 per cent. Even cursory examination of many protocols of multiple or even primary operations vividly shows that it is not merely a surgical "feather in the cap" whether or not the patient escapes a hospital death. Rather, does he recover a reasonably normal state of health? End-results and not surgical technic should be the criterion.

THREE VICIOUS CIRCLES IN CHRONIC GALL TRACT DISEASE

A close study of the factors concerned in the continued or relapsing ill health of the victim of chronic gall tract disease will show that there are three vicious circles at work.

The first is concerned with the lymphatic drainage between the gallbladder, liver and pancreas. If there exists a mural or interstitial cholecystitis of bacterial nature, the gallbladder becomes a genuine focus of infection and the lymphatic distribution reroutes the infection to the liver and pancreas and back again to the gallbladder. Such gallbladders will fail to be relieved permanently by nonsurgical drainage, and tend to relapse. The only way to break this first vicious circle definitely is to remove the gallbladder (Fig. 1).

Occasionally the focal mural infection may die out or become attenuated after connective tissue overgrowth has become excessive; but by this time the function of the gallbladder has usually been destroyed, and the end-result is much the same and warrants cholecystectomy.

From 70 to 85 per cent. of such gallbladders when removed early, without injury to ducts or without peritoneal soiling, will insure satisfactory recoveries which redound to the credit of surgery—the percentage of restoration to health being in direct ratio to the skill and technic of the surgeon who pays attention to reducing surgical trauma to liver, intestine, and the blood and nerve supply.

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[11] Meltzer, S. J.: Am. J. M. Sc. **153**: 469 (April) 1917.

[12] Sachs, Adolph: Nebraska M. J. **6**: 225 (Aug.) 1921.

[13] Pribram, E. E.: Klin. Wchnschr. **2**: 1590 (Aug. 20) 1923.

[14] Matsuo, Iwao: Magnesium Sulphate as Cause of Evacuation of Gallbladder, J. A. M. A. **83**: 1289 (Oct. 25) 1924.

[15] Silverman, D. N., and Menville, L. J.: Observations of Visualized Gallbladder by Graham Method, J. A. M. A. **84**: 416 (Feb. 7) 1925.

[16] Personal communication to the authors.

[17] Lyon, B. B. V.: Am. J. M. Sc. **159**: 503 (April) 1920; **162**: 60 (Jan.) 1922; **162**: 223 (Feb.) 1922; Pennsylvania M. J. **25**: 392 (March) 1922; M. Clin. N. Am. **8**: 803 (Nov.) 1924; Therap. Gaz., November-December, 1924; Non-Surgical Drainage of the Gall Tract, Philadelphia, Lea & Febiger, 1923.

[18] Lyon, B. B. V.: Therap. Gaz., November-December, 1924.

Still too high a percentage of all cases relapse, most frequently when surgery is poor, but not infrequently despite the most skilful surgery. Seeking a reason for this, the commonest cause lies in a preexistent hepatitis which often creates a residual infection and catarrh in extrahepatic ducts (if not already infected), as pointed out particularly by Graham [19] and by Heyd,[20] and produces a relapsing cholangeitis heretofore often requiring secondary surgery.

In such cases, the liver, ducts and intestinal tract become the chief focal points of infection, and in them the second and third vicious circles become predominant.

The liver or ducts, or more commonly both, continue to carry the infected and poisoned bile into the duodenum and down through the intestine to exit in the feces. This disseminates the infection throughout the intestines until they, in turn, often develop mural as well as mucosal disease.

This second vicious circle, therefore, consists in reabsorption of bacteria or toxic substances in the bile by way of mesenteric veins, emptying into the portal vein, thence back to and through the liver, part of the toxic dose being shunted by the hepatic veins through the inferior vena cava into the right heart, but the larger part again reexcreted by the liver bile to be again reabsorbed in the intestine (Fig. 2).

The third vicious circle is similar, but represents that toxic portion of the bile picked up by the mesenteric lacteals, emptied into the receptaculum chyli, thence by way of the thoracic duct into the left innominate or left subclavian vein, finally to reach the heart. Once again this poisoned or impoverished blood is pumped out into the arterial circulation to exert a harmful effect on all tissues (Fig. 3).

Particularly important is that portion of total blood carried by the abdominal aorta to nourish the intra-abdominal viscera. After supplying the spleen, stomach, pancreas and intestines, the waste materials from such sources are in part again carried through their veins into the portal system and back to the overworked and functionally enfeebled liver cell to be reexcreted, and the vicious circle is renewed.

No wonder that the cardiac, renal, blood-vascular, neural and intestinal systems, in varying degrees in different cases, begin to groan with a wide variety of symptoms. The effect of the second and third vicious circles, especially in the visceroptotic patient, is clearly evident.

It is generally conceded that the liver has a wide margin of reserve, with great power of recuperation from direct and indirect insults. Nevertheless, the continued absorption of toxins devitalizes liver cells and in time seriously impairs or destroys their function and encourages degenerative tissue changes.

BREAKING THE VICIOUS CIRCLES

How, then, can the second and third vicious circles be broken? Obviously, each is beyond the scope of judicious surgery, which cannot remove the liver or ducts and have the patient survive, certainly not for long, as witness the recent experimental work of Mann.[21]

Herein lies the greatest value of nonsurgical drainage of the biliary system as a therapeutic agent. Previous surgical experience has shown that by removing from the body the quotient of recoverable toxic factors in the bile, the muscular irregularity of the heart disappeared, evidence of toxic irritation of the kidneys subsided, neural irritation (neuritis) quieted down and digestive function improved. In short, general symptomatic improvement was usually secured, but its duration was too often limited to the surgical drainage period; and relapse often occurred after sinus drainage was terminated, and the poisoned bile was again passed through the usual intestinal channels. Therefore, it appeared that simple removal of the bile from the body, plus the lesser element of bed rest, regulation of diet, etc, was the cause of much clinical improvement.

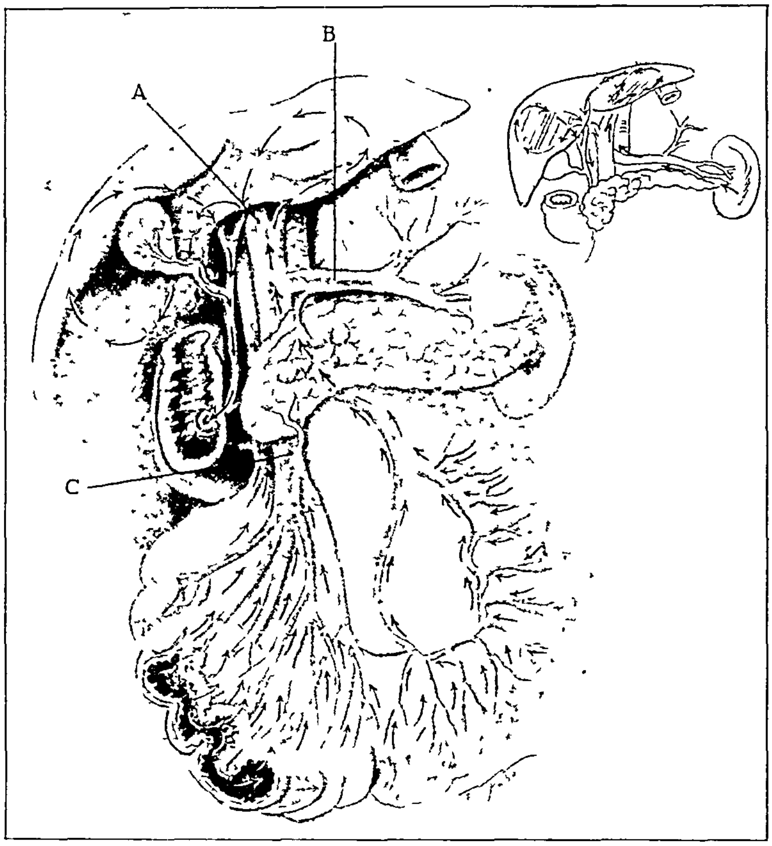

Fig 2.—Second vicious circle (blood) in advanced gall tract disease. *A*, portal vein; *B*, splenic vein, *C*, mesenteric vein

As knowledge of the first vicious circle became more widely appreciated the era of cholecystectomies

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19. Graham, E A Surg, Gynec & Obst **26:** 394 (April) 1918 Graham, E A, Peterman, M G, and Priest, W S, Jr Association of Hepatitis with Experimental Cholecystitis and Its Bearing on Pathogenesis of Cholecystitis in the Human, Arch Surg **2:** 92 (Jan) 1921 Graham, E A, and Peterman, M G Further Observations on Lymphatic Origin of Cholecystitis Choledochitis and Associated Pancreatitis, Arch Surg **4:** 23 (Jan) 1922

20 Heyd, C. G, Killian, J A, and MacNeal, W J · The Liver and Its Relation to Chronic Abdominal Infection, The Beaumont Foundation Lectures, St Louis, C V Mosby Company, 1924

21 Mann, F C · Am J M Sc **161:** 37 (Jan) 1921 Mann F C, and Magath, T B Am J Physiol **55:** 285, 1921, Tr Sect Path & Physiol, 1921, p 29, Studies on Physiology of Liver, Arch Int Med **30:** 171 (Aug) 1922, **31:** 797 (June) 1923 Williamson, C S, and Mann, F C Am J Physiol **65:** 267 (July) 1923

began, with increased success in the hands of first class surgeons. Nevertheless, relapses still occurred, as a result of the activity of the second and third vicious circles, factors in chronic gall tract disease not clearly enough appreciated.

Our experience indicates that the evil effects of this can be controlled and often eradicated by nonsurgical drainage, vaccine therapy and total management by methods already reported.

Maximum drainage of the liver and ducts can be secured by the duodenal tube. A study of many bedside notes and surgical reports of the amount of bile drainage recovered by glass or rubber intubation of common or hepatic ducts averaged not quite 500 c.c. in twenty-four hours (except in jaundiced cases due to common duct obstruction), whereas an average of 1,500 c.c. bile drainage in twenty-four hours can be secured by the duodenal tube.

INTERMITTENT DRAINAGE VERSUS CONTINUOUS DRAINAGE

Until about three years ago, nonsurgical therapeutic drainage was confined to the use of the intermittent method. By that, we mean a four to eight hour daytime drainage repeated at daily, semiweekly or weekly intervals. This amount of drainage was often sufficient to clear up the mildly catarrhal or infected gall tract systems, but was not adequate in securing permanent improvement in the more severe grades of hepatitis, cirrhosis, cholangeitis and pancreatitis.

A four hour morning drainage will recover, on an average, 300 c.c. of mixed bile of which three quarters approximately will be "AC" (duct-liver) fraction. An eight hour day drainage will average about 600 c.c. of which five sixths represents "AC" fraction. If such intermittent drainages are carried out once a week for two months the amount of bile recovered will average either 2,400 or 4,800 c.c. removed from the body during that period of time.

Each drainage removes from the body much inflammatory débris and myriads of bacteria, as is evidenced by microscopic and cultural examination. The transduodenal lavage flushes out the intestinal tract and helps to detoxicate, but despite eight weekly drainages, the catarrhal gall tract fills up for fifty-two out of sixty days. Therefore, it became apparent that in the more severe cases, the treatment should be intensified, and by degrees the present method of more continuous drainage was instituted, and found to be a practical procedure contributing to final success. Continuous drainage will recover and remove from the body an average of from 3½ to 4 gallons (from 13,248 to 15,140 c.c.) of bile in three weeks' treatment. This thoroughly drains the liver, revitalizes its cells, flushes ducts, prevents clogging with mucus, inflammatory or infected débris, avoids secondary stasis and minimizes the possibility of secondary calculi. It likewise drains the pancreas, lightens its labors and lessens chemical and bacterial insults to duodenal mucosa.

CONTINUOUS DRAINAGE SCHEDULE

8 a. m.	The mouth and stomach are prepared by thorough gargling and lavage.
8:30 to 12 m.	Duodenal drainage, stimulating with magnesium sulphate, peptone, olive oil, dilute hydrochloric acid, physiologic sodium chlorid solution or hot water (depending on whether the gallbladder has been removed or on the individual drainage response to any of these solutions).
12 noon	The tube is passed to a point 95 cm. from the teeth and the following duodenal feeding given:

		Calories
Milk (whole)	120 c.c. (4 oz.)	80
Cream	15 c.c. (½ oz.)	30
Yolk	1 egg	50
Lactose	15 gm. (4 tsp.)	60
Salt	1 pinch	..
		220

	The food is predigested for ten minutes with peptonizing powder, put in a vacuum bottle at 105 F. and introduced slowly by the rectal drip method, not less than thirty minutes being taken for its introduction. If nausea is present the egg yolk is omitted, the rate of inflow slowed, or both.
	The tube is clamped off for an additional half hour to permit this feeding to pass into the jejunum.
1 to 4 p m.	The tube is drawn up to 75 cm., marked and drained.
4 to 5 p. m.	The duodenal feeding is repeated.
5 to 8 p. m.	Bile drainage is resumed.
8 to 9 p. m.	Duodenal feeding.
9 p. m.	The tube is pulled up to 75 cm., marked and unclamped, and bile is drained into a gallon bottle throughout the night.
8 to 12 m.	The following day, the patient is restimulated with magnesium sulphate, peptone solution, olive oil, hot water or physiologic sodium chlorid solution and biliary drainage is continued until noon. A transduodenal lavaging enema of 250 c.c. of Ringer's solution is given, or suitable disinfectants—silvol, neutral acriflavine, mercurochrome-220 soluble, etc.—are substituted, as previously recommended. The tube is removed.
12:30 p. m.	A lunch of cereal, soft egg, toast, fruit juices or fruit.
3 p. m	Milk or crackers.
6:30 p m.	Dinner tray, either well balanced or low in animal protein and fat and high in carbohydrate, sugar, starch, as indicated by knowledge of the patient's gastric, duodenal, pancreatic and blood chemistry.
9:30 p. m.	Milk and crackers.

That night, the patient sleeps without the tube, and the following morning the foregoing schedule is repeated and so on over a period of from two to four weeks, until from 3 to 6 gallons (from 11,355 to 22,710 c.c.) of bile mixture has been recovered, provided the daily microscopic and biweekly cultural objective evidence parallels clinical improvement.

During this period of intensive treatment, the patient should be suitably controlled by additional laboratory observations (blood counts, blood chemistry, urinalysis, quantitative urine output, etc.) and the usual careful bedside notes carried out by a nurse trained in the technic of this management.

SELECTION OF CASES FOR TREATMENT

Biliary tract drainage, when properly carried out, will be found to have great therapeutic value in the following groups:

1. Relapsing cholangeitis (particularly after a cholecystectomy has failed to relieve) can often be cured without resorting to secondary operations, provided there is no evidence of residual stone in the common or hepatic ducts.

2. In many cases of obstructive jaundice due to impacted or ball-valve common duct stone the foregoing plan, aided by morphin, has lessened inflammatory

edema and sphincter spasm and permitted the stone to bob back into the dilated common duct. Occasionally, it has been passed and recovered in the sieved stool. After drainage has been established, the jaundice rapidly clears and toxic myocarditis and nephritis subside, and thus safer surgery is permitted at an earlier period than under the older form of management.

3. When proper judgment is used in the selection of patients, many persons with quiescent cholelithiasis may be restored to satisfactory health. Some patients with restless cholelithiasis with inflamed mucous membrane of gallbladder and gall ducts may be relieved of their colics and brought to a state of quiescence, and necessary surgery can be carried out at the most suitable interval period, as in appendicitis, when the risk is less.

4. In many cases of gall tract disease, including quiescent cholelithiasis, in which, for some reason (particularly in those of advanced years) surgery cannot be undertaken, we have seen nonsurgical drainage substituted for surgery with most satisfactory results. When there are serious surgical contraindications in gallbladder disease requiring cholecystectomy, a week or two weeks of preoperative drainage, when practicable, serves to detoxicate the patient more rapidly, and permits earlier surgery with increased safety.

5. Postoperative persistent hiccup, and vomiting may be brilliantly checked sometimes after the first few hours of drainage, certainly after a day or two. A number of cases of epidemic hiccup have been promptly aborted. In most of these cases, a streptococcus has been isolated from the bile.

Postoperative adynamic ileus has been successfully combated by biliary drainage and duodenal lavage.

6. Some persistent biliary fistulas have been successfully closed by this form of drainage, with the aid of vaccines. Jaundice following arsphenamin treatment can be aborted.[22]

7. Simple catarrhal jaundice usually clears promptly in from two to seven days after the obstructive plugs of mucus are removed. This spares the liver and pancreatic cells many days of pressure damage.

8. Early gallbladder and gall duct catarrhs, with subinfection, and especially cystic duct obstruction due to catarrh, diagnosable only by medical drainage study, can often be permanently cleared up and later more serious pathologic conditions prevented Cholecystitis as a complication of acute infectious fevers will often respond favorably. The objective drainage findings in many infectious fevers give evidence of the early mucosal damage to gallbladder and ducts, microscopically showing pronounced exfoliation of tall and short columnar gall tract epithelium.

9. This continuous method of drainage, modified slightly in diet, has been found an excellent plan of treatment for gall tract disease associated with duodenitis or the medical form of duodenal ulcer.

10. There is a large group of patients with hepatic-intestinal toxemia who give vague histories of atypical digestive symptoms, "dyspepsia," "nervous indigestion," and "biliousness," with anorexia, constipation, headache, nausea, belching, flatulence, dizziness or vertigo, and various skin changes—swarthiness, petechiae, "liver spots" or telangiectases—suggesting biliary or portal cirrhosis, but no definite evidence in physical examination, roentgen-ray studies or drainage findings to condemn the gallbladder or appendix. In many patients of this group, the gallbladder and appendix have already been removed. Medical biliary drainage and colonic irrigation will secure much better results than calomel or other drugs.

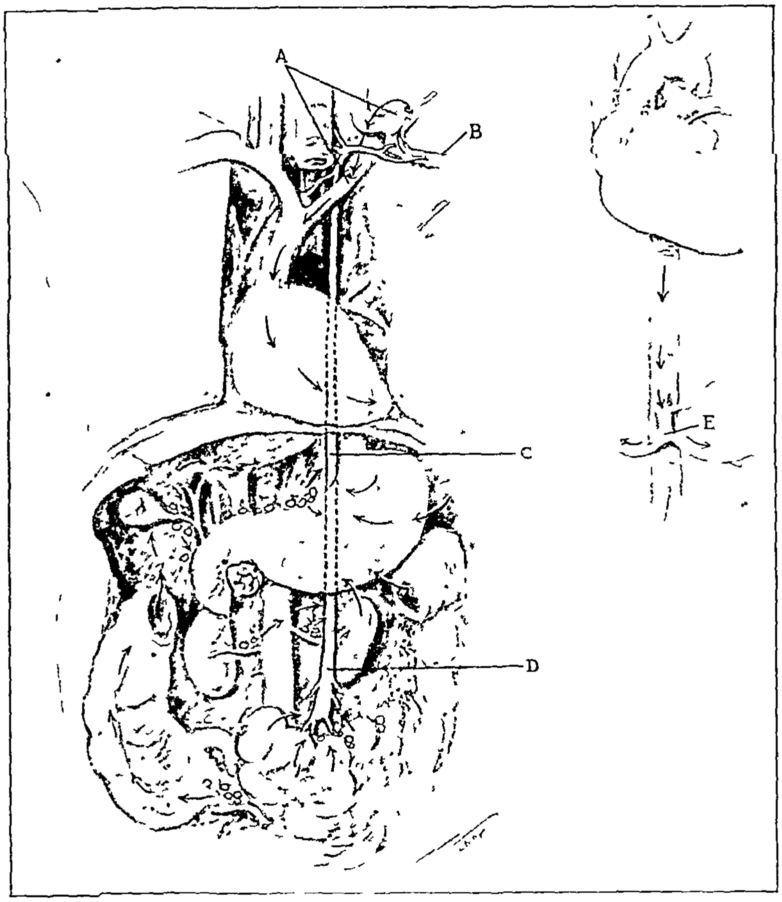

Fig 3.—Third vicious circle (lymph) in advanced gall tract disease: *A*, innominate vein; *B*, subclavian vein, *C*, thoracic duct, *D*, receptaculum chyli, *E*, celiac axis.

11. Another large group suffers with severe sick headaches, often cyclic, suggesting biliary migraine. Many such patients can be completely relieved. It is important to exclude headaches due to eye strain, sinusitis, nephritis, arteriosclerosis, ovarian dysfunction and intracranial conditions which require different treatment. The use of erysipelas and prodigiosus toxins (Coley's serum) has been worth while in some unusually stubborn cases not responding to other measures.

12. Certain forms of asthma which do not type properly to allergy tests seem to be due to some toxic factor within the gastro-intestinal tract which responds favorably to this form of treatment.

13. In association with other measures, some cases of chronic neuritis and arthritis have been greatly improved, particularly joint cases in which there is

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[22] Wilhelm, L F X: Duodenal Lavage in Treatment of Jaundice Complicating the Treatment for Syphilis, Arch Dermat. & Syph. **10**: 499 (Oct) 1924

infection within the liver or intestine. All recognizable extra-abdominal foci should be removed, if possible.

14. In a group embracing typhoid carriers, flagellate or other parasitic infections involving biliary tract and upper intestines, this treatment will be found helpful. Giardiasis is especially stubborn and, in its tendency to relapse, suggests invasion of the gallbladder.[23]

15. Finally, there is a group embracing various problem diseases for some of which cases very distinct improvement has been secured. In cirrhosis of the liver, when detected in an early stage, often accidentally at the time of gall tract surgery, this treatment, when added to the orthodox plan of management offers some promise of forstalling the later more serious aspects of the disease.

Among others benefited may be mentioned a patient with hemolytic jaundice with splenomegaly, several with pernicious or grave secondary anemias (due to circulating liver toxins?), chronic pancreatitis or subfunction. Some patients with diabetes have been distinctly aided.

A case of erythema nodosum and a case of purpura hemorrhagica, both in association with manifest gall tract disease, cleared up satisfactorily, after diet and chemotherapy alone had previously failed.

We have had several cases of a nontraumatic form of epilepsy, especially in young adults, but in two cases of chronic epilepsy of many years' standing, the seizures were greatly lessened in frequency and severity, after phenobarbital and other drugs had failed to relieve. One man, aged 49, who had weekly convulsive attacks, has gone without an attack for more than a year since drainage and colonic irrigation were discontinued. There is clinical evidence to suggest that there may be circulating toxins from liver or intestines, the removal of which by drainage and irrigation prevents or ameliorates the attack. The foregoing group embraces our personal experience.

LIMITATIONS OF NONSURGICAL DRAINAGE

We have heretofore called attention to the limitations of this method. Our views have been aptly summed up by Niles,[24] after an experience of more than 3,000 drainages. He says:

> In order to properly evaluate any procedure, the therapeutic use of such a procedure should presuppose: First, that the proper cases should be selected, and secondly, that the procedure should be carried out in a thorough and skilful manner. . . . The assumption that this method will remove gallstones, will break up adhesions, will cure appendicitis, or cancer of the liver, or remove deep seated organic pathology of the gallbladder and duct, is ridiculous, and the patients should be plainly so informed. . . . Furthermore, no physician should use this method unless he goes into it wholeheartedly, performing it in a technically correct manner, and is willing to persevere in his efforts, regardless of either active opposition from many of his confrères, whose approbation he desires, or those who would "damn it with faint praise."
>
> While neither the principle nor practice of nonsurgical gall tract drainage is accepted by a multitude of conscientious physicians, on the other hand, a multitude who are employing it are getting satisfactory results.
>
> The writer wishes to express an earnest belief that this procedure will continue to enjoy a wider acceptance among the medical profession, as its real value is better understood, and its limitations more definitely fixed; and that it will eventually reach a proper and accepted place as a recognized therapeutic procedure.

This summarizes the position which we have constantly maintained.

THE NECESSITY OF TOTAL MANAGEMENT IN GALL TRACT DISEASE

In association with the use of nonsurgical drainage as a preoperative and postoperative measure, total management of chronic gall tract disease should embrace a dietetic regimen of frequent small feedings with reduced fat and animal protein content, colonic irrigations when indicated and vaccine therapy. Chemical therapy by mouth should be prescribed only to correct known factors of abnormal gastroduodenal, pancreatic and biliary tract chemistry. Common sense efforts should be directed to restoration of normal bowel function, breaking the laxative habit—constipation vicious circle—and, finally, education of the patient to adjust his life so as to place the least strain on damaged organs.

HOW MUCH BILE DOES THE LIVER SECRETE?

During our experience with continuous therapeutic drainage, we were struck by the very large quantities of bile that can be recovered by duodenal tube. In many instances, from 3 to 6 gallons (from 11,355 to 22,710 c.c.) could be removed from the body in from three to four weeks' time. Depending on its viscosity and admixture with other fluids, such as gastric, duodenal and pancreatic juice, a gallon averages 7 or 8 pounds (3.2 or 3.6 kg.) in weight. From 35 to 40 pounds (from 16 to 18 kg.) of fluid weight have been extracted with inconspicuous loss of body weight. Indeed, certain patients show a gain in weight despite the diminished caloric intake.

In some cases, it would appear that the larger amount of bile secreted by the liver was removed since the stools were brought to an acholic state. In others, the color of the stools and the tests for the bile content indicated that, despite the withdrawal of these large amounts, it did not represent the recovery of the total bile secreted.

We question whether this large withdrawal of bile from utilization for digestive function could be practiced without unfavorable results in persons with normal digestion and no intra-abdominal disease. However, in the sick, especially those suffering from hepatic intestinal toxemia or advanced gall tract disease, the beneficial effect of such treatment is very striking.

Should we not recast some of our former views expressed in current textbooks in regard to how much bile the liver secretes? It has been generally stated to range between 1,000 and 1,500 c.c. in twenty-four hours. Our experience leads us to believe that these figures are much too low. Perhaps they could even safely be doubled. Admitting the fact that the fluids recovered from the duodenum represent a mixture of secretions from liver, pancreas, stomach and duodenum, which cannot be readily separated for individual analysis or weighing experiments, it would appear that by far the largest part represents liver secretion.

Case 1.—From a man with chronic cholecystodochitis and catarrhal cystic duct obstruction (but without jaundice), severe pain, depression and erythema nodosum, 16,960 c.c. (4½ gallons [17,033 c.c.] of bile mixture) weighing 35 pounds (16 kg.) was recovered in twenty days. The actual number of drainage hours was 147, representing 113 c.c. an hour, or 2,764 c.c. in twenty-four hours. The patient's weight on admission was 207 pounds (94 kg.), on discharge, 201 (91.2 kg.). There was entire symptomatic recovery over a period of one year.

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[23] Giardiasis, Frequency, Recognition, Treatment and Certain Clinical Factors, to be published.

[24] Niles, G. M.: J. M. A. Georgia **13**: 165 (April) 1924.

Case 2.—From a man, aged 32, with cirrhosis of the liver with subjaundice, two years after a cholecystectomy, 19,760 c.c. (5 gallons) of bile mixture weighing 40 pounds (18 kg.) was recovered in 133 drainage hours, over an eighteen day period, or at the rate of 141 c.c. an hour, or 3,384 c.c. for each twenty-four hours. His weight on admission was 121 pounds (54.9 kg.), on discharge, 123 (56 kg.). One year later, this patient remained greatly improved, was no longer jaundiced, and had gained 30 pounds (13.6 kg.).

In states of frank jaundice, the amount of bile recovery is much larger but this does not indicate increased secretion, as shown by Case 3.

Case 3.—From a man, aged 50, with postoperative obstructive cholangeitis, 3,600 c.c. of bile was recovered in eighteen hours, or at the rate of 200 c.c. an hour, or 4,700 c.c. for each twenty-four hours.

Case 4.—A man, aged 50, had had previous operations; a pyloroplasty, a cholecystostomy and an appendectomy in 1916, and, following a relapse, a cholecystectomy and a choledochostomy in 1917. Three weeks' surgical drainage recovered 1¾ gallons (6,624 c.c.) of bile. He was referred in 1922, seriously ill with relapsing cholangeitis with jaundice, Grade 4, pain, fever, sweats, leukocytosis and myocarditis. Continuous drainage for five days recovered 2½ gallons (9,463 c.c.) of bile. Microscopy revealed acute catarrhal inflammation and *Staphylococcus aureus* infection. Vaccine was given. Improvement followed. A lesser relapse occurred four months later, with jaundice and pain. Eighteen hours' duodenal drainage recovered 3,600 c.c. of bile. There was prompt improvement. Intermittent drainage was carried out for a year. No further relapses occurred, and in 1925 this patient remains in much better health.

We have noted that a proportionately larger amount of bile is often recovered during the night drainage hours, during the interdigestive phase, when the liver is not being stimulated by ingestion of food. Frequently, amounts ranging between 800 and 1,800 c.c. of bile mixture have been recovered from 9 p. m. until 9 a. m. An increased rate of liver secretion can be noted in certain cases following the introduction of a duodenal feeding, whereas in others this effect is not so marked.

Clinical observations on different patients, indicate that there is a distinct variability in the rate of bile secretion in individual livers. In some, it appears greatly accelerated; in others, definitely retarded. Most of our experimental observation has concerned persons who were sick. Not enough opportunity has developed for controls with so-called normals, because of the difficulty in securing normal persons who will undergo this form of clinical experimentation.

ILLUSTRATIVE CASE

The beneficial effect of biliary drainage on a laboring cardiorenal system clinically noted can often be substantiated by laboratory findings.

Case 5.—A man, aged 52, had relapsing cholangeitis after a cholecystectomy for gallstones performed one year earlier. Pure cultures of *Bacillus typhosus* of the "carrier" type were revealed twenty-seven years after the primary infection. This patient, with damaged cardiovascular and renal systems, was seriously ill, jaundiced and in severe upper abdominal pain. Intermittent drainage, followed by continuous drainage, recovered 14,440 c.c. (3⅝ gallons) of very viscid liver bile, weighing 31½ pounds (14.3 kg.) after 124 drainage hours, with definite clinical improvement. The laboratory control is illustrated by the accompanying table.

*Laboratory Findings in Case 5**

Date	Weight, Pounds	Pulse Rate	Blood Pressure		Total 24 Hour Urine, C.c.	Specific Gravity	Casts	Phenolsulphonephthalein Output, 2 Hour Intramuscular	Blood Chemistry, Mg. per 100 C.c.					White Blood Cells	Hemoglobin (Dare)
			Systolic	Diastolic					Glucose	Uric Acid	Urea Nitrogen	Nonprotein Nitrogen	Creatinin		
2/23/25	163	90	152	100	.....	.....	....	....	...	....	....	....	....	......	....
2/24/25	...	..	...	...	.....	1.025	Hyaline granular	19%	...	....	....	....	....	......	....
2/25/25	...	..	...	...	550	.....	....	....	149	4.16	20.0	50.0	1.88	10,100	81%
2/26/25	...	80	160	100	.....	.....	....	....	...	....	....	....	....	......	....
3/ 2/25	...	..	...	...	.....	1.025	....	....	...	....	....	....	....	......	....
3/ 3/25	153	..	...	...	.....	.....	Hyaline granular	....	...	....	....	....	....	......	....
3/ 6/25	...	..	...	...	.....	1.014	None	27%	...	....	....	....	....	......	....
3/ 8/25	...	76	147	98	.....	.....	None	....	...	....	....	....	....	......	....
3/10/25	...	..	...	...	.....	1.012	None	....	...	....	....	....	....	......	....
3/12/25	...	..	...	...	.....	1.015	None	....	...	....	....	....	....	......	....
3/13/25	...	..	...	...	.....	.....	None	....	...	....	....	....	....	9,800	82%
3/15/25	154	..	...	...	.....	.....	None	....	...	....	....	....	....	......	....
3/16/25	...	..	...	...	2,400	.....	None	....	...	....	....	....	....	......	....
3/17/25	...	..	...	...	.....	1.015	None	....	...	....	....	....	....	......	....
3/20/25	...	..	...	...	.....	1.018	A few hyaline	....	...	....	....	....	....	9,000	83%
3/21/25	156	68	140	84	.....	.....	....	....	...	....	....	....	....	......	....
3/24/25	...	..	...	...	2,834	.....	....	....	120	4.1	18.0	45.0	1.76	......	....
3/25/25	...	..	...	...	.....	1.013	....	....	...	....	....	....	....	......	....
3/28/25	...	70	142	80	.....	.....	....	....	...	....	....	....	....	8,150	82%
4/ 2/25	...	..	...	...	3,735	.....	....	....	...	....	....	....	....	......	....
4/ 7/25	154	68	142	92	.....	.....	....	....	...	....	....	....	....	......	....
4/10/25	...	..	...	...	2,850	.....	....	....	...	....	....	....	....	......	....
4/11/25	...	..	...	...	.....	1.011	None	....	...	....	....	....	....	......	....
4/13/25	...	..	...	...	.....	.....	....	29%	148	2.9	11.1	25.2	1.87	7,200	....
4/14/25	158	72	140	88	.....	.....	....	....	...	....	....	....	....	......	....

* Albumin, glucose and ketones negative throughout. Bile positive from February 24 to March 3. Discharged April 14.

The improvement in blood chemistry findings was conspicuous in regard to urea and nitrogen retention, and suggests that by withdrawal of these elements in the bile, a load is lifted from laboring kidneys, permitting better function. This is in keeping with the latest experimental work of Mann,[25] indicating that the liver is the chief organ concerned with the formation of urea.

SUMMARY OF THERAPEUTIC RESULTS SECURED

In a recent study of 376 cases, 318 were treated by nonsurgical measures alone, in which duodenal drainage was featured. Some patients had incipient disease, some late pathologic changes with complications, and many were seriously ill. Thirty per cent. remained "cured;" i. e., symptom free for from one to four years; and objective findings became normal.

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[25] Bollman, J. L.; Mann, F. C., and Magath, T. B.: Am. J. Physiol. 69: 371 (July) 1924. Mann, F. C.; Bollman, J. L., and Magath, T. B.: Ibid. 69: 393 (July) 1924.

Fifty-two per cent. were so much improved as to resume former occupation, discard further active treatment and remain in good health for periods longer than one year.

Nine per cent., in a group representing chronic illness of many years' duration, were considerably improved.

Two per cent. were entirely unimproved. Only one patient (0.2 per cent.) died.

Of this series of 376 patients, fifty-two had gall tract surgery practiced without relief, averaged two abdominal operations per patient and were badly incapacitated. This result was partly due to persistent postoperative complications and partly to bad choice of original operation, or incomplete exploration and failure to recognize a multiple lesion. Many were found to have residual pus or bacterial foci in tonsils, teeth, etc., which accounted for relapses or unfavorable end-results.

Twenty-seven of these fifty-two patients were treated entirely by various nonsurgical procedures, including biliary drainage and vaccines with marked improvement; nineteen patients required further gall tract surgery, preceded and followed by nonsurgical drainage, before health was restored.

Our five years' experience has shown that excellent end-results have been secured in three out of four gall tract patients by the use of nonsurgical measures alone. It is impossible to evaluate end-results in any comparative series of gall tract cases in which operations were or were not performed and draw reliable conclusions. Individual cases vary too greatly. But analysis of the details of this study will show that the results speak for themselves.[18]

We believe that many gall tract operations now being done (often because of errors in diagnosis) might be avoided if expert nonsurgical management is available; but, we also believe that in conditions of chronic gall tract disease, the indications for cholecystectomies may even be increased.

This seeming paradox is explained by the fact that diagnostic biliary drainage, when intelligently performed, will detect larger numbers of nonfunctioning gallbladders due to obstructed cystic ducts, with associated evidence of hepatitis or cholangeitis. This will demand a larger number of cholecystectomies to break the lymphatic vicious circle between liver and pancreas, that only surgery can accomplish. Thus, only the functionless gallbladder will be removed, to the benefit of the patient. We believe that there will be a smaller number of postoperative relapses if cases treated by surgery are given preoperative and postoperative nonsurgical drainage.

All cases of advanced gall tract disease theoretically require surgery; but cholecystectomy removes only one end-product of gall tract disease, and not the disease itself. Practically, surgery might better be confined to removal of pathologic conditions (gallbladder, stones, cancer, adhesions, stricture, etc.) or to short-circuiting operations for nonremovable obstructive lesions (cholecystoduodenostomy, etc.) and then drainage established in nonobstructive lesions by duodenal tube methods. This will prove to be the better, if not the only, way of breaking the second and third vicious circles in chronic .ll tract disease.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CARLSON; MANN; GREENE; OPIE; MCCLURE, MENDENHALL AND HUNTSINGER, AND LYON AND SWALM

Dr. L. G. Rowntree, Rochester, Minn.:. Dr. Carlson's statements fairly present our present knowledge of the physiology of liver function. Dr. Whipple calls attention to another important matter, and I hope that we shall follow up his suggestive leads in regard to possibilities of better dietetics in the treatment of anemia. Dr. Mann's work will go down into medical history, along with Claude Bernard's work on the glycogen function of the liver. By means of hepatectomy he has been able to gage the function of the liver. His findings are of tremendous significance to biology, physiology and medicine. Unfortunately, the results of his work are not all generally applicable in the clinic. His uric acid work, however, contains another fertile suggestion, and it should be worth while to follow this up in the clinic. Dr. Opie has touched a most important need in medicine: the correlation of function and morphology in the study of diseases of the liver. There is no field of differential diagnosis at the present time more unsatisfactory than that of the liver, especially in the field of jaundice. A knowledge of such matters as Dr. Opie has discussed is essential to diagnosis. Furthermore, we need more information on the funcion of the liver in experimentally induced diseases of the liver. Dr. McClure has brought out new methods of approach. It seems a field well worth while cultivating. I myself do not believe we are justified in drawing definite, clean-cut conclusions, relating to liver function, on the quantitative side, from the data based on the examination of mixed juices found in the duodenum. The question of interpretation of the findings is difficult. We must go slowly in accepting these results as quantitative for the liver, until they are proved to be so. I am particularly interested that Dr. McClure is following function from the standpoint of treatment, for, after all, it is of great significance to ascertain whether the measures employed in liver diseases are effective from the standpoint of benefit to the patient. We have found that circulatory disturbance is a great factor in some conditions, particularly in cirrhosis of the liver. In some instances, the liver function has improved as the ascites of cirrhosis has been cleared up under the use of novasurol. Dr. Lyon's work is familiar to us all. In Rochester, we rarely use and rarely obtain information of value from transduodenal drainage from the standpoint of diagnosis. Also, we are using it less frequently than formerly in treatment, though we do get favorable results from it at times. However, in fairness, I should admit, that, so far as I know, we have had no experience with the long-continued drainage to which he has referred. I concur in Dr. Greene's conclusions most heartily. The cases that constituted the basis of his report are proved cases. In the field of function study there exist many striking analogies in regard to the liver and kidney. At present, we consider the phenoltetrachlorphthalein test the most valuable single test. I wish to pay tribute to Dr. Rosenthal, who has done much to popularize this test.

Dr. Franklin W. White, Boston: The most serious difficulty in liver function tests is the tremendous compensatory power of the liver, the large margin of safety, which is a fine thing for the individual, but hard for the test. The older tests for sugar tolerance, and nitrogen in the blood and urine have been disappointing in diagnosis. They have been rather characteristic of disease groups, as Dr. Greene has said, not diagnostic in individual cases. Dr. Greene has been wise in laying stress on two tests, on the excretion of certain dyes and the detection of serum bilirubin. The excretion of tetrachlorphthalein seems to be one of our best methods of diagnosis at present. We get marked retention in serious diseases, such as cancer, cirrhosis and syphilis of the liver, and we also get retention in less serious cases, such as infectious jaundice and toxic conditions (after arsphenamin), and by using this test we can follow the condition of the liver. With regard to the serum bilirubin test, there is no question that bile in the blood precedes and is more important than bile in the tissues, and it seems reasonable to use this as a liver function test, and at the present time it is proving valuable in detecting liver injury. The value of this test may lead to some unreasonable expectations. I will cite a single instance: Jaundice is an important sign of gallbladder disease; we expect some hepatitis. Will the test for latent jaundice help us to pick up more latent gallbladder cases? It would seem not. We get hepatitis, but Dr. Greene found little change in liver function. This is a minor point. I was interested in the close parallelism in the two tests, namely, the retention of dye and the blood bilirubin, and it seems possible at that time we might use the simpler test to represent the whole situation, instead of carrying out both, which means more work. The tests for bile solids which Dr. McClure has presented seem perfectly logical and reasonable; we do not expect a diseased liver to pour out normal bile. There are, however, some drawbacks. The chemical methods for the detection of bile solids are at present dubious, and also the duodenal contents have many variables. We have some stomach contents, some duodenal secretion, some pancreatic secretion as well as a variable mixture of gallbladder and liver bile, and it seems to me remarkable that in the presence of so many variables Dr. McClure's quantitative results have been so consistent. Nonsurgical biliary drainage has seemed to me, from the purely clinical side, to have real value as a method of treatment in a limited group of cases, not so much in emptying the gallbladder as in draining the general liver passages and getting rid of infected bile. Dr. McClure's studies have shown that the duodenal contents are completely changed in character in chronic gallbladder cases after repeated drainage with magnesium sulphate. This perhaps is an indication of real value in this method in certain cases.

Dr. Martin J. Synnott, Montclair, N. J.: My experience with nonsurgical duodenobiliary drainage began about five years ago, and during this time we have done the procedure approximately 3,000 times. We follow the Lyon technic, except that we now rarely wash the stomach, unless there is a definite indication for so doing, as we have found that the metal tip of the tube passes more readily into the duodenum if the stomach washing is omitted. We believe that the stomachs of certain hypersensitive patients are irritated by lavage to a state of very active peristalsis, which accounts for our failures in intubing the duodenum, causing the tube to coil up in the stomach, and in a few instances actually tying knots in the tube. Our procedure now is to pour through the tube into the stomach, after the tube has been swallowed to the 55 cm. mark, 100 c.c. of water; then we have the patient lie down on the right side, and swallow very slowly, taking twenty minutes to do so, to the 75 cm. mark, at the end of which time the tip is almost invariably found to be in the duodenum. Dr. Lyon has referred to the value of nonsurgical drainage of the biliary tract in diabetes. I should like to elaborate a little on this subject. In the fall of 1921, a series of experiments was conducted at the Physiatric Institute in Morristown at my suggestion and under my direction, and the report of the work was published by my co-workers, Dr. J. J. Selman and Dr. H. S. Martland and myself in the *Journal of Metabolic Research*, March, 1922. We did duodenobiliary drainage in fifty-three diabetic cases. Twenty, or 37 per cent., of these cases gave a definite history of jaundice or affections referable to the upper right abdominal quadrant. Six cases, or 11 per cent., showed positive and conclusive evidence of existing biliary infection. This led us to conclude that, in an appreciable percentage of diabetic cases, ascending duct infections, or gallbladder infections extending into the pancreas, either directly or through the lymph channels, played an important part in the etiology of the disease. We believe that every case of diabetes should be carefully examined and studied according to the Lyon method because it is the most practical, the most available, and in certain early cases the only method of determining whether or not the biliary system is infected. Where such infection is found to exist, it is most important to give therapeutic drainages in order to eliminate one of the main factors contributing toward downward progress. Since this article was published, I have had a chance to observe the results of duodenobiliary drainage in numerous cases of chronic diabetes in the middle aged, where I have reason to believe gallbladder and duct infections have been the main etiologic factors in causing the pancreatic disease, and where continued therapeutic drainage according to the Lyon technic has not only cleansed up the biliary infection but has relieved the clinical symptoms of the diabetes and increased the carbohydrate tolerance of the patients, without insulin or rigid dietary regulation.

Dr. J. Quincy Thomas, Morristown, Pa.: I am convinced that biliary drainage as a therapeutic measure is no longer a theory; it is a fact. Proved theories are facts. We all accept new theories with more or less mental reservation, but after they have become proved we should be broad minded enough to accept them as facts and I have accepted biliary drainage as a therapeutic and diagnostic measure because we are dealing with facts. Prior to the publishing of the technic which has been so carefully worked out by Dr. Lyon, what method did we have of treating these cases outside of surgery? Nothing but the common methods which some of us are still sticking to. Biliary drainage today as carried out by the Lyon method, and not any short-cut method, will give wonderful results in the properly selected cases. Following cholecystectomies, what methods did we have prior to the biliary drainage method? Again, we had nothing of any account. We gave calomel and magnesium sulphate, sent our patients to resorts and what not, and when they returned we had to resubmit them to the surgeon. Today we have a very simple method which will give complete relief to our patients, and we can promise much in these cases if it is carried out according to the method as subscribed by the author. I want to make the plea to stick to this method; I am sure the results will be surprising. The three vicious circles of which Dr. Lyon spoke in which he plainly admits that the first cycle can be cured only by surgery is exactly right. The two other cycles will respond to proper biliary drainage. The Lyon method includes not only passing the duodenal tube into the duodenum and draining off a few cubic centimeters of bile and trying to arrive at a diagnosis, but also a very careful study of the patient as a unit, and we sometimes get overscientific.

Dr. S. M. Rosenthal, Montreal: In an attempt to find out the mechanism by which certain dyestuffs and bilirubin are excreted by the liver, I have studied their behavior from a physicochemical standpoint. By ultrafiltration experiments I have found that they circulate in the blood firmly bound to the serum proteins. This prevents their elimination by the kidneys. Bile salts, by virtue of their effect on surface tension, are able to liberate bilirubin and these dyestuffs from their adsorption compound with the proteins, so that they can be further excreted by the liver. This is of interest because it indicates a physiologic rôle for the bile salts in washing away, from the blood proteins, substances that are excreted in the bile, and because it is an approach to the explanation of certain phases of the mechanism of hepatic secretion. The objection is frequently raised that dyestuffs are unsuitable to test the functional ability of an organ because they are unphysiologic. This can hardly be upheld if we do not even know what physiologic means, and my studies indicate a similar mode of excretion for the dyes and for bilirubin. Bromsulphalein, a new dye worked out by Dr. White and me, has proved the most satisfactory in the clinic as a test for hepatic function because of its simplicity of technic and its freedom from untoward reactions. Normally it is excreted in the bile more rapidly than any other substance I know, and in liver disease its retention in the blood is the most striking. In acute liver disease there is a tendency for the various function tests to give parallel results, although differences occur which have not been fully explained. In chronic liver disease, information may be obtained from the dye test which can be obtained in no other way.

Dr. Robert H. Rose, New York: Nonsurgical gallbladder drainage, in my experience, has benefited patients who could not have been helped with other methods. The first case was migraine headache, occurring twice a week. I had dieted this patient according to my former information and had produced some benefit, but the headaches were recurring, not quite so severe, but as often, and the nonsurgical gallbladder drainage stopped the headaches. I have seen the same thing happen in other cases. There is no question about it. I have used silver nitrate, 1:6,000, in conjunction with Epsom salt, and found that it does not interfere in any way with the use of Epsom salt. One can inject Epsom salt and follow almost immediately with silver nitrate, and it does not interfere. I believe that silver nitrate is of benefit in many instances, and helps in these cases as well. It will aid in drainage when there is a great deal of mucus; it cuts mucus and permits the solution to come through the small tube.

Dr. L. R. Whitaker, Boston: With regard to the question of nonsurgical biliary drainage, a discovery has been made which seems to be of considerable importance. In 1922, Dr. Edward A. Boyden of the Medical School of Harvard University found that by feeding cats a mixture of egg yolks and cream the gallbladder could be made to empty in from three to six hours. We have found independently by the use of cholecystography at the Peter Bent Brigham Hospital that after the patient had been given food containing fat, the gallbladder shadow would exhibit a marked shrinking within a period of from half an hour to two hours. Following this we tried several substances, among which was magnesium sulphate, which had been previously observed by Silverman and Menville to produce a reduction in size of the gallbladder shadow when given by the duodenal tube. The mixture of egg yolks and cream produced in one subject a much more striking reduction after a period of one and one-half hours than was exhibited in another subject after the intraduodenal injection of magnesium sulphate over a longer period than that. This is a finding which I believe has a great deal of bearing on nonsurgical drainage and would seem to offer an entirely new view.

Dr. William Henry Kraemer, Wilmington, Del.: I consider myself an embryo in duodenal drainage. I am still working on my first hundred cases. There were just one or two points that were not brought out and I want to ask largely for information. The first was that Dr. McClure, who spoke before Dr. Lyon, mentioned the variation in dose of magnesium sulphate in those cases in which he failed in the usual prescribed amount. The second was the striking experience I had in finding the short chain streptococci in gallbladder cases, which also was revealed in the focal infection of tonsillar abscesses and in teeth. The other point I wanted to make was that I usually follow up my gallbladder drains with sodium phosphate to stimulate still further the function of the liver. What I principally wish to ask is, What are the variations in magnesium sulphate doses from the usual ones described by Dr. Lyon?

Dr. Daniel N. Silverman, New Orleans: The original studies on the effect of magnesium sulphate administration on the visualized gallbladder have been made by Dr. Menville and myself. The introduction into the duodenum of a singular dose of magnesium sulphate solution produces an apparent modification in the size of the gallbladder shadow. Our later experiments have proved that repeated injections of magnesia produce a greater reduction of the gallbladder shadow. The employment of magnesium sulphate for gallbladder drainage by the Meltzer-Lyon method is obviously advantageous, since it allows for a microscopic study of the bile return.

A. J. Carlson, Chicago: One of the men discussing these papers said he was convinced that what Dr. Lyon said regarding biliary drainage, diagnosis and treatment was true. He said he was convinced of its truth. I can only say I wish it were true. I did not have time to develop the physiology of the gallbladder and the possible reflex relations to the duodenum. I have tried my best to understand the physiologic mechanisms of the results reported on gallbladder drainage by Lyon's technic. Textbooks usually state that bile does not enter the intestine between meals. That is wrong. If there is no mechanical obstruction, bile enters the intestine practically all the time, even during fasts of from fifteen to thirty days in man, and of sixty days in dogs. Show me the data proving that magnesium sulphate in the duodenum drains the bile tract any more completely than does food. I do not understand Dr. Lyon when he says that he "disinfects the duodenum." What is meant by "poisoned bile"? One of the men reported hookworms in the contents returned from the duodenum. How many hookworms would he have secured with a dose of salts by mouth followed by examination of the stools? The removal from the body of the amount of bile reported cannot have much significance either for the gallbladder or for the intestine, unless there is an unusual permeability or irritability of the intestine. Pus in the bile may be significant, but what symptom is induced by this pus acting in the intestine? We are swallowing bacteria every day. There are a few bacteria that are specifically toxic in the intestine. There are a few toxins poisonous by mouth, but, so far as I know, we could eat pus, ordinary pus, and not be influenced, excepting esthetically. It is not clear, therefore, that finding bacteria or pus in the duodenal content means injurious effects from the bacteria or bile lower down. The vicious circles that Dr. Lyon describes are largely theoretical, except the first one, in which there is mechanical obstruction. I have tried to understand the duodenal drainage therapy on its physiologic basis. I do not understand how the effects reported can possibly be due to drainage of a patent bile system with the additional removal of some of this bile from the duodenum. In saying this I may merely be exposing my ignorance. But I feel that in the cases in which Lyon's duodenal drainage is followed by improvement we must search for additional factors. Koch's postulates are still good science and good medicine. Has Lyon or Smithies reproduced the disease by putting the duodenal return into the duodenum of well persons or dogs? Dr. Rowntree said I was a harsh critic. I try to be fair in my destructive and helpful in my constructive comments.

Dr. George H. Whipple, Rochester, N. Y.: I am a little bit skeptical about some of the things Dr. McClure said. I was not aware that there were accurate tests for bile salts in the presence of duodenal secretion. I should like to be pleasantly surprised. Therefore I do not know just what Dr. McClure was measuring, but I don't believe he was measuring bile acid. I know a little about the dye test in the clinic from my association with Dr. Rowntree some time ago. I believe that in the literature too much emphasis has been placed on these dye elimination tests when jaundice and obstruction are present in the biliary passages. I don't believe this dye test is of any value whatever when there is obstruction of the bile passages. With no abnormality of the bile passages, dye elimination has definite value; but how often can the clinician be sure that the passages are normal? I feel that the interpretation of the dye test in many clinics has not been rigidly enough controlled. I may say that Dr. Greene and Dr. Rowntree have been very careful in their interpretation.

Dr. F. C. Mann, Rochester, Minn.: It is rather gratifying to me after working several years on the physiology of the liver to have this free discussion. It has brought out the great importance of the liver not only physiologically but also clinically. I think that in future years we are going to see the liver occupy a more important position physiologically, pathologically and clinically. Let us go a little slow in some respects until we know more about the function of the liver. For example, the levulose test was mentioned as a method of determining liver function. In some recent experiments we have found that the body can seemingly utilize levulose without the liver. How could it be a liver function test when the body can utilize it without the liver? This is true also of many other of the liver functions. In many of the physiologic processes in which the liver is involved, other organs or tissues also play an important part. A good example of this is the relation of the liver to the blood sugar level. The liver regulates the concentration of glucose in the blood, but the pancreas and other tissues have to do with its utilization. The difficulty of establishing a glucose tolerance test for liver function is readily seen.

Dr. Carl H. Greene, Rochester, Minn.: Dr. White raised the question of the use of the dye test in cases of jaundice. As I tried to make clear, jaundice completely dominates both the clinical and the laboratory findings. Under these conditions the dye test and the serum bilirubin are of value not so much in establishing the presence of jaundice as in furnishing a quantitative means of following the progress of the jaundice. Serum bilirubin will show the presence of latent jaundice, and in the absence of that dye, reaction will be of value. The dye test particularly will show diffuse injury to the liver, as a whole, much more readily than a localized lesion. Prolonged chloroform anesthesia will produce diffuse necrosis throughout the whole liver, and the dye test will show marked retention. Chloroform injected into the portal vein will produce areas of local necrosis, but the remaining liver tissue is undamaged. Under these conditions the dye test will not show changes because the uninjured normal portion of the liver is sufficiently active to give a normal test. The same thing is true in clinical experience. A patient with multiple metastasis with nodules in the liver may have sufficient undamaged liver tissue to result in a normal test. I saw one patient with a hydatid cyst giving a normal test because the left lobe of the liver was in normal condition, and 10 or 15 per cent. of liver may be sufficient to carry a patient through. Positive tests are of particular value in extending and increasing the knowledge that we obtain from clinical means. The question of latent jaundice in cholecystitis came up. The clinical picture of cholecystitis with stones is recognized by repeated attacks of colic and jaundice. Clinically recognizable jaundice does not always follow such colics. The finding of a bilirubinemia or latent jaundice in such a case has the same significance as jaundice. Medical literature has long been filled with references to biliousness, torpid liver, and so forth. An attempt has been made to interpret these in terms of actual insufficiency of the liver. Many different physiologic factors may enter to explain that condition. At present, our tests will not give positive objective evidence of actual disturbance in the liver in many cases of that type. It is all part of the larger field of the disease of the liver, and I don't want to be misunderstood in that relation because these tests are only one point in the question of diagnosis. The final test will depend on the correlation of the studies, not only of the physiologist, but of the chemist, the pathologist, the clinician, the internist and the surgeon as well.

Dr. Eugene L. Opie, Philadelphia: Dr. Lyon has suggested that toxic products from the liver return to the liver in vicious circle. It is important to realize that the liver has considerable capacity to overcome infection. The bacterial content of the blood might suggest that the liver has failed to control bacteria brought to it, but we have no index of its relation to toxic products of bacteria.

Dr. B. B. Vincent Lyon, Philadelphia: Dr. Carlson has challenged me to defend my position. The experimental physiologist who lives each day among his laboratory animals sometimes knows very little about the sick human animal as seen in general practice. Our problems are therefore different. Dr. Carlson asks me how much of my belief is based on proved facts and how much on theory. The laboratory problem can often be proved with mathematical exactness. Few clinical experimental problems can be proved except by deductive reasoning, and rarely in their entirety. The results of our methods of diagnosis and treatment of gall tract diseases speak for themselves. Our diagnostic platform utilizes all the agents spoken of today, but in addition we gain a further impression of the total clinical picture by a properly conducted study of duodenal aspirates. If a given sick man's gallbladder is surgically removed or its contents are drained and the patient regains health, no particular criticism is directed against surgical methods or the question raised as to why that patient improved. We accept that as a clinical fact. But if the sick man does not improve or becomes worse and goes through repeated operations and still continues to relapse, as a result of the vicious circles I have described, no matter how hypothetic Dr. Carlson chooses to call them, and, if under our methods of nonsurgical drainage plus total management the patient regains health and remains well under close observation, I submit that this should establish reasonable clinical proof of the value of such methods, even though we cannot explain the exact why of it to the scientist's satisfaction. Dr. Carlson asks me just what poisons we drain out of the liver. I wish I knew. I wish the physiologists or the physiologic chemists could tell us. We have listened to a symposium on the detoxicating and bactericidal powers of the liver and its other functions, and still we don't know. There is a great difference between what the healthy liver cell can detoxicate or destroy or manufacture, and what the diseased liver, working with damaged heart, kidneys, spleen or intestines, can do. Our removal of bile from such patients improves them. Hence, we argue that the bile is poisoned. Dr. McClure's methods should be commended. They are a step in the right direction and furnish help not yet secured from the pure scientist. We need more such work on the human animal. Such clinical studies will in the end contribute much to the progress of medicine that will be of profit to the patient.

Dr. F. C. Mann, Rochester, Minn.: In order that we might not go with too many definite, clean-cut things, I want to state that the pictures showing differences in sizes of gallbladder do not necessarily mean that the gallbladder emptied by forcing contents through the cystic duct. If these substances open the sphincter, the gallbladder would not fill and in the time available between pictures the size of the viscus could be diminished as much as shown by concentration. I don't know what did happen.

THYMUS AND THE TREATMENT OF ITS HYPERFUNCTION

CLINICAL AND ROENTGENOLOGIC CONSIDERATIONS *

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ERNEST C. SAMUEL, M.D.
AND
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NEW ORLEANS

The study of the thymic shadow shown on the roentgenogram was undertaken in the Newly Born Service of Touro Infirmary about three years ago with the idea of arriving at some definite conclusions as to the size, shape and position of the thymus. Examinations were made, beginning during the first twenty-four hours of birth, up to the present time, and an endeavor was made to show what type was causing the peculiar syndrome that we see in children.

The first authentic description of this clinical picture was in Rokitansky's textbook, which appeared in 1861. He described a general hyperplasia of all the lymphatic structure, with an especial reference to the increase in the size of the thymus. Arnold Platauf, in an article published in 1889, still adhered to Rokitansky's theory of a specific constitutional anomaly. Sheila, in 1876, showed that the specific thymic extract, when injected, produced a long train of clinical symptoms. This extract is never present in the human embryo, but forms after birth. (It is probably a hyperthymization in the gland that is hypertrophied which causes the symptoms seen.) Bartel, as the result of more than a hundred necropsies on children, interpreted status thymus lymphaticus as being a part of a general glandular hypertrophy. This hypothesis we have been unable to prove or disprove, as we have had only one death that came to necropsy.

We will not repeat the statistics of others, as this is purely a clinical paper, but we will try to give our experiences together with the method of roentgenography and the means of radiotherapy.

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* From the Department of Pediatrics and the Department of Roentgenology, Touro Infirmary.

* Read before the [illegible] the Section on Miscellaneous Topics at the [illegible] Session of the American Medical Association, At[illegible] 1925.

The child is brought to the roentgen-ray department within the first twenty-four hours of birth; a roentgenogram of the thymic area is made, double intensifying screens being used; one tenth second; 80 milliamperes at from 85 to 90 kilovolts; and distance of tube from plate, 36 inches. It is quite essential that the child be held still, and this is best done by one assistant holding the child's arms and head, another the legs, and both making slight traction. The examination is repeated in three, six, nine and twelve months, then again in the second year, and we now have a few cases going into the third year period.

Up to the present, we have been unable to arrive at a definite standard as to the size, shape and position of the gland causing symptoms, some patients having all the effects of a hyperfunctioning thymus, and on examination showing only a very slight enlargement, while other cases in the series, with marked enlargement of the gland, show no clinical manifestations. We have seen patients in whom we reported an enlargement at birth show the same proportionate increase in the gland throughout the entire series. The heart shows no relationship in size to the thymus, although we rarely see a marked thymic enlargement that is causing symptoms without an increase in the size of the right side of the heart.

In a large percentage of these cases, the shadow of the thymus is seen to the right and left, with the large finger-like projection overlying the right side of the heart. Holmes states that the diagnosis of enlarged thymus is difficult, and when no shadow is seen, especially in patients before operation, a false sense of security is given. This has not been our experience, as we have had a considerable number of cases in which operation was performed, especially for tonsils and adenoids. These patients have had enlarged thymuses and were treated by us, and films made the day before operation and a control made in a few days failed to show any recurrence of the condition or evidence of any ill effects from the anesthetic. We agree with Holmes in regard to the importance of the clinical symptoms, as we always review these cases before a final diagnosis is made; but we both feel that the roentgen-ray findings are of paramount importance. We are not satisfied with negative findings in some of the patients, and in a few cases have made semilateral roentgenograms of the chest to bring out the enlarged gland that merges with the shadow of the aorta. This, however, is not possible in all cases, because of the movement of the child.

It is amazing what some of the films will show in the first twenty-four or forty-eight hours. We are yet to see a patient without enlarged mediastinal glands and with very definite lung markings suggesting some fibrosis, and as these cases are observed, the glands become larger and the markings more pronounced. We think, as time goes on, that this sort of study will bring us to change our ideas of lung pathology from the roentgen-ray point of view. We think that the diagnosis congenital heart disease should not be made too readily without considering the thymus as a causative factor. We do not wish to suggest in this paper that all pathologic conditions within a child's chest are due to an enlarged thymus, but on the contrary, we only desire that the roentgenographic findings be considered most carefully.

Finally, as a matter of technical detail, we are now working on a plan to make exposures during both systole and diastole of the heart for the sake of comparison. We have noted an apparent enlargement during diastole that disappears during systole as the result of a marked engorgement of the gland with blood during one period of the cycle. This presents a great deal of technical detail in regard to apparatus and will have to be done eventually with some type of electrical timing device. Report on this phase of the problem will be made later.

Treatment, after the diagnosis of the enlargement is established, is done under the supervision of one of us (E. R. B.). Our choice must be made whether the irradiation shall be done with roentgen or radium rays. In the application of the rays to children, theoretically the use of radium is preferable, as it can be fixed firmly in the desired location and, no matter how restless the child, the rays are constantly directed to the region of the gland. In using radium, our method has been to use 100 mg. of radium element in 2 mm. of brass filter, separated from the skin by a distance of 5 cm., firmly fixed in place by adhesive plaster reinforced by a binder. The duration of the exposure has varied from eight to twelve hours, depending on the urgency of the case and the size of the thymus, as well as the age and size of the child. Anterior applications have been the rule, although in giving a series of three radium exposures we have usually applied the first dose anteriorly and the second dose posteriorly, and lastly we have come back to the anterior chest wall. The interval between applications has usually been from ten days to two weeks, unless the condition of the child is grave. Three applications, with no improvement, has been our limit of radium dosage, as we feel that if we have accomplished nothing by this, the case is not amenable to irradiation. Our success, however, has been quite uniform, and rarely have more than three or four applications been required. Here, as with roentgen irradiation, we have observed no ill effects.

Our roentgen-ray dosage, our method of choice in thymus irradiation, will possibly seem rather mild, but we feel that our best reply to any question of its adequacy is to refer our critics to our results. We have yet to encounter a case of thymic enlargement that has not been controlled with the ray. We have tried various technics of treatment—from 1 to 3 mm. of aluminum filtration; from 5 to 7 inch spark gap; 5 milliamperes, 10 inches distance, from one to three minutes' time—and we have finally settled on uniform exposures of one minute, 7 inches gap, 5 milliamperes 1 mm. of aluminum filter, 10 inches distance, this giving approximately one tenth of a skin unit. The number of treatments required is determined primarily by the clinical symptoms, and to a distinctly secondary degree, by the size of the thymus as shown in the roentgenogram, for we have frequently found the absorption of the gland following very slowly after a complete and permanent disappearance of the clinical picture. No bad effects have been observed following the treatments. The only difficulty attendant on roentgen irradiation of the thymus has been the restlessness of the patient, but it has always been possible in some way to hold the child still for the length of the treatment. The average number of exposures required is between four and five.

Out of a total of 623 cases of children irradiated at various ages from birth to 39 months, 125 cases of thymic enlargement have been observed, or approximately 20 per cent. The length of time these cases have been under observation has varied greatly, owing to the difficulty of retaining clinic patients under observation.

These cases of thymic enlargement have had varying numbers of control examinations, roughly averaging three. The necessity for control of these cases has in only about one third of the cases extended longer than a period of six months.

ABSTRACT OF DISCUSSION

Dr. I. S. Trostler, Chicago: A little trick that I employ in diagnosis is to get the baby to crying and make the exposure while the child is crying. I have another little stunt for holding the baby during the treatment. I place a folded sheet under the child, bringing it up to the axilla; I put the arms through the openings and pull the sheet tight, and the baby cannot move the arms. Another sheet fastened firmly over the legs holds the baby motionless.

Dr. Preston M. Hickey, Ann Arbor, Mich.: Do you make the exposures in an anteroposterior or postero-anterior direction?

Dr. C. E. Piersall, Reno, Nev.: What was the dose of radium?

Dr. Maurice Lenz, New York: How soon do you repeat the second dose? In some experimental work that I did, the young rabbits had the thymus completely regenerated within three weeks, after one twelfth of an erythema dose.

Dr. Samuels: Roentgen ray or radium?

Dr. Lenz: Roentgen ray.

Dr. C. D. Chappell, Flint, Mich.: I have treated several cases of enlarged thymus. One baby, with a diagnosis of congenital heart lesion, died three or four days afterward from pneumonia. At the necropsy, we found a thymus which was so large that it obliterated the heart. Two children, whom I was unable to treat, died on the way home from my office. The treatment that I use is essentially the same as that of Dr. Samuels, but the exposure is longer because I increase the distance.

Dr. Henry K. Pancoast, Philadelphia: We have treated a large number of cases of suspected enlarged thymus in children and also a group of adult patients with persistant thymus who were going to be operated on for goiter. I cannot make a roentgen-ray diagnosis of enlarged thymus in children in many instances, because it is very difficult to say whether the thymus is too large for the age of the child or not. Often the thymus seems to be about the normal width and density for the age of the child, and yet there are very definite clinical signs of obstruction. I believe that these cases need treatment, and I rely entirely on the clinical diagnosis as an indication for treatment. We administer a little less than half an erythema dose with the low voltage machine, delivering about 130,000 or 135,000 volts. This seems to suffice in most instances. Sometimes we have to repeat the treatment in ten days or two weeks. We rarely have to give more than two doses.. When children are obviously thymic cases, and when during the roentgenologic examination we are very much alarmed at their condition for fear they may die on the table, we do not treat them with the roentgen ray. I would hesitate to tie such a child on a table and to put a roentgen-ray tube over it. We refer such cases to a nearby institution to be treated by a radium pack. If we wait until the child gets perfectly quiet, lying down, the pack can be adjusted and a part of the dose given without danger. This should be a fairly good part of the dose, however, to get the effect. Later the remainder of the dose can be given. This is a much safer procedure than attempting to use the roentgen ray. Several clinicians in Philadelphia have been much alarmed by having had a thymic death or two in their practice, and as a result they are taking no chances with children under suspicion. If they suspect that a child is likely to have an enlarged thymus, a single treatment can be easily given and does no harm.

Dr. A. L. Gray, Richmond, Va.: I agree with Dr. Pancoast. We must not be governed altogether by the size of a thymus as it appears on the roentgenogram. I have seen a perfectly normal child, so far as could be determined by physical examination or clinical evidence, with a thymus so large that if we had observed anything like it in size in a supposed thymus case, we would not hesitate to say it was pathologic. My experience has been altogether with roentgen-ray treatment. My technic is approximately one-half an erythema dose, but I usually irradiate two areas in a series, one on the front and one on the back.

Dr. Ernest C. Samuels, New Orleans: The roentgenograms are made in the anteroposterior position. The radium dosage usually is 100 with 3 mm. of brass filter, at a distance of 5 cm. from the skin. We repeat this dose in seven or eight days and make a control roentgenogram before the treatment is given. In answer to Dr. Pancoast, I think that our statistics stand for what they are. We have not had one single death on the table, and we have had these children in all stages of the thymic syndrome. We have been worried sometimes. The one death we had was not a thymus death. It was due to pneumonia, apparently an aspiration pneumonia. It was one of the first twenty-four cases in which we saw the enlarged thymus that had had only one exposure. We have used radium quite extensively in a large number of cases. We shall adhere to our roentgen-ray dosage, because we find absolutely no reason to change over to radium when we have had uniformly good results in these cases. Dr. Pancoast spoke about depending more on the clinical diagnosis in the amount of therapy to be given. All of our work is done in collaboration with the department of pediatrics. It is not purely a roentgen-ray diagnosis, but is done in conjunction with the clinician.

THE SIGNIFICANCE OF EDEMA OF THE FACE IN MYOCARDIAL INSUFFICIENCY *

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The edema that occurs in patients suffering from myocardial failure is characteristically of the dependent type; that is to say, it is almost always most prominent in the lower extremities or across the sacrum, depending on whether the patient has been on his feet or has remained in bed. In the more severe grades of heart failure, edema may involve the subcutaneous tissues of the entire trunk, and free fluid may appear in the abdominal and pleural cavities. The type of edema that we wish to discuss is that which involves chiefly the eyelids and occasionally the entire face of patients with myocardial insufficiency, excluding those who have organic renal disease or obstruction of the veins of the head and upper extremities. In these patients, edema of the face is almost always associated with edema of the usual type, and frequently swelling of the upper extremities is present as well. In other words, the distribution of edema in these cases resembles very closely the edema that is commonly seen in patients suffering from renal disease.

Little reference is made to edema of the face in most of the books on heart disease that we have consulted. Mackenzie[1] says: "If the patient leans more to one side than the other, *in extreme cases* (italics ours), the arm and cheek of that side may become greatly swollen." Miller[2] has observed that children with very severe and acute rheumatic heart disease frequently have puffy eyelids. Crummer[3] has also called attention to edema of the face in myocardial failure, stating that when it occurs, it is usually indicative of some lung or mediastinal condition complicating the original heart disease. In several textbooks, there has been no statement concerning the occurrence of edema of the face.

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* From the Medical Clinic of the Johns Hopkins Hospital and University.

1. Mackenzie, J.: Diseases of the Heart, Ed. 3, London, Oxford University Press, 1918, p. 307.

2. Miller, R.: The Medical Diseases of Children, Bristol, John Wright and Sons, Ltd., 1911, p. 374.

3. Crummer, L.: Clinical Features of Heart Disease, New York, Paul B. Hoeber, Inc., 1924, p. 24.

We have been impressed by the severity of the degree of myocardial failure in patients in whom edema of the face or of the arms occurs. Indeed, practically all such patients that we have seen have died within a relatively short time. We have had the opportunity of observing a number of patients with myocardial failure who, after repeated entries into the hospital, on each of these occasions showing the usual type of "cardiac" edema, have finally been seen with the "renal" type as well. Almost invariably, death has resulted within a few weeks.

The following cases are more or less typical of the others.

REPORT OF CASES

CASE 1.—*Chronic rheumatic endocarditis, mitral stenosis, auricular fibrillation, myocardial insufficiency, infarct of lung.* E. S., a man, aged 41, was first admitted to the hospital in 1899, when he was 15 years old, for acute rheumatic fever and rheumatic heart disease. From this time to June, 1923, he was admitted on six different occasions for acute rheumatic fever or for myocardial insufficiency, or both. In June, 1923, as on other occasions, the symptoms and signs of myocardial failure were typical, the edema being confined to the lower extremities; the blood nonprotein nitrogen was 32.2 mg. per hundred cubic centimeters.

In April, 1925, he entered the hospital for the eighth time. The degree of myocardial failure was extreme; edema was extensive in the lower extremities and trunk, and was present in the face and arms also. The blood nonprotein nitrogen was 68.2 mg. per hundred cubic centimeters. For a short time, there was moderate improvement. May 1, however, following the development of pulmonary infarction, his condition rapidly grew worse; the edema of the face became striking. May 4, the blood nonprotein nitrogen was 86 mg. per hundred cubic centimeters; May 6, it was 77.5 mg.; May 13, it was 92 mg. and May 15, the day of his death, it was 80 mg.

At necropsy, the kidneys were normal except for the presence of chronic passive congestion.

CASE 2.—*Chronic myocarditis (syphilitic); myocardial insufficiency; terminal bronchopneumonia.* J. J., a man, aged 34, in 1917, had a chancre. From March, 1922, to August, 1924, he was a patient in the hospital on four separate admissions. On each of these occasions, he had the usual signs of myocardial failure, without evidence of valvular defects; the blood Wassermann reaction was positive. Edema, when it was present, was always confined to the dependent portions of the body. During two of the admissions, the blood nonprotein nitrogen was 33.5 and 42.8 mg. per hundred cubic centimeters.

On the fifth admission, in October, 1924, there was slight puffiness of the eyelids, in addition to moderate edema of the lower extremities and across the sacrum; the blood nonprotein nitrogen was 38 mg. per hundred cubic centimeters. He became progressively worse. December 8, the blood nonprotein nitrogen was 55.8 mg. per hundred cubic centimeters; at this time edema of the face was striking. He continued his progressively downward course and died, Jan. 29, 1925.

At necropsy, the kidneys showed only chronic passive congestion.

CASE 3.—*Acute rheumatic myocarditis, chronic rheumatic endocarditis, aortic insufficiency, mitral stenosis, myocardial insufficiency, transient auricular fibrillation and heart block.* E. K., a youth, aged 16, at the age of 5, had "rheumatism" in one knee. Following an attack of chorea, at the age of 12, he developed typical cardiac symptoms. These symptoms increased, and were quite severe during the last year.

He presented evidences of myocardial failure, without any edema, in addition to manifestations of acute rheumatic fever. Shortly after his admission, his blood nonprotein nitrogen was 48.6 mg. per hundred cubic centimeters. During the next few weeks, his condition became gradually worse.

May 4, the patient was very ill; it was noted that there was conspicuous puffiness of his hands and face. There was a slight amount of fluid in the abdominal cavity, but no edema elsewhere. On the following day, the blood nonprotein nitrogen was 74 mg. per hundred cubic centimeters. The edema of the face and hands, as well as the other symptoms, increased rapidly, and he died, May 6.

At necropsy, the kidneys were normal except for the presence of chronic passive congestion.

COMMENT

Since the edema that we have observed in these and other patients resembles so closely that which develops in many patients with organic renal disease, it seemed probable that when this symptom appears, it is an indication of disturbed renal function due to the severity of the myocardial failure. We have attempted to gain some confirmation of this view by comparing the renal function of patients with different degrees of myocardial insufficiency. As the criterion of renal function we have taken the amount of nonprotein nitrogen of the blood. In view of the fact that phenolsulphonephthalein excretion may be considerably depressed relatively early in myocardial failure, we have not used this test as a basis for comparison. We have taken the histories of eighty consecutive patients who were admitted to this hospital for myocardial insufficency, and who fulfilled certain requirements. They were all 45 years of age or under, in order to avoid patients who might have significant renal lesions incident to old age; none of them were suffering from hypertension or generalized arteriosclerosis, or gave other evidence that organic renal disease was present. Almost all these patients were subjects of either rheumatic or syphilitic heart disease; a very small number had myocardial failure due to hyperthyroidism.

For the sake of simplicity we have divided the patients into those who died and those who left the hospital improved to a greater or lesser extent. We have subdivided these groups into those in whom the nonprotein nitrogen content of the blood was 50 mg. per hundred cubic centimeters or higher, and those in whom it was less than 50 mg. per hundred cubic centimeters. The data are shown in the accompanying table.

Nonprotein Nitrogen Content of Blood in Patients with Myocardial Insufficiency

	Total Number of Cases	Cases in Which Blood N. P. N. Was Less Than 50 Mg. per 100 C.c.		Cases in Which Blood N. P. N. Was 50 Mg. per 100 C.c. or More	
		Number	Per Cent.	Number	Per Cent.
Died	28	16	57	12	43
Lived	52	49	94	3	6

Without laying too great emphasis on percentage figures, it is apparent from the table that there is a definite relationship between the severity of impairment of the renal function, as judged by the nonprotein nitrogen content of the blood, and the prognosis in myocardial insufficiency. Actually, the figures minimize the importance of the increase in blood nonprotein nitrogen as an indication of the degree of myocardial insufficiency. Of the sixteen patients who died with blood nonprotein nitrogen contents of less than 50 mg. per hundred cubic centimeters, only seven died of progressive heart failure. Of the other nine, four had acute rheumatic myocarditis; one with complete heart block died of prolonged ventricular asystole; two had multiple pulmonary embolisms and infarctions; one had a ball thrombus of the mitral valve; one had subacute bacterial endocarditis; and four, with syphilitic aortitis and aortic insufficiency, died suddenly, the cause of the sudden death being undetermined. In other words, death in each of these nine cases was due in part at least, to causes other than progressive myocardial insufficiency.

In many of the patients who eventually left the hospital as improved, there was a slight elevation of the blood nonprotein nitrogen, usually not above 45 mg. per hundred cubic centimeters. In general, these figures are substantially in agreement with those which have been obtained by others, including Klein,[4] who has studied the nonprotein nitrogen content of the blood in myocardial insufficiency. We have found, as he has, that although the blood nonprotein nitrogen runs fairly parallel with the severity of myocardial failure, there are a few cases in which this is not true. In a small number of cases, the blood nonprotein nitrogen may be considerably elevated in patients who, though quite ill, later improve; and there are a few patients who die without ever showing a distinct rise in blood nonprotein nitrogen. Klein has attributed these exceptional findings to factors other than renal functional impairment, chiefly the rate at which the edema fluid and tissues absorb and give up the nonprotein nitrogen of the blood during various stages of myocardial failure. That is to say, even though functional impairment of the kidneys may tend to cause the blood nonprotein nitrogen to rise, the nonprotein nitrogen may diffuse from the blood into the edema fluid and tissues at a greater rate, so that the blood nonprotein nitrogen may remain at a relatively low level. Conversely, during periods of improvement, the blood nonprotein nitrogen may rise, because of the fact that the nonprotein nitrogen of the edema fluid and tissues diffuses into the blood at a greater rate than it is excreted by the kidneys. In any case, the level of the nonprotein nitrogen of the blood depends on a balance of these two factors.

We have presented these figures of the blood nonprotein nitrogen in patients with myocardial failure in order to show that it is likely that the renal type of edema which is seen in patients with severe myocardial failure is due to functional impairment of the kidneys. Unfortunately, we do not have figures for the blood nonprotein nitrogen of all the patients who have had edema of the face. In all but one of the patients whose blood nonprotein nitrogen figures are available, there was a definite increase. In view of Klein's studies, it is not to be expected that every patient with functional impairment of the kidneys, even though severe, will show an elevation of the blood nonprotein nitrogen.

We do not mean to imply that the severity of myocardial failure is to be judged by the nonprotein nitrogen content of the blood. The clinical symptoms and signs are usually clear enough. Our purpose is to offer an explanation for the type of edema that we have described, the distribution of which is unusual in patients with heart failure. We wish to point out also that when there is distinct depression of renal function, even when there has been no previous structural change in the kidneys, myocardial failure has advanced to such a stage that it is usually incompatible with life.

SUMMARY

In cases of advanced myocardial insufficiency, occasionally edema of the "renal" type may appear, involving the face and often the upper extremities. It is probably due to impaired renal function, and when it appears it is usually indicative of a grave prognosis.

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[4] Klein, O.: Ueber das Verhalten des Reststickstoffs im Blute bei kardialer Stauung, Ztschr. f. klin. Med. 95: 137 (Sept.) 1922.

CONVALESCENT SERUM IN PREPARALYTIC CASES OF POLIOMYELITIS

RESULTS OF INTRAMUSCULAR ADMINISTRATION *

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AND
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SAN FRANCISCO

The brilliant observations of Levaditi and Landsteiner, Römer and Joseph, Flexner and Lewis, and Anderson and Frost that immunity or neutralizing substances to the poliomyelitis virus are present in the blood serum of recovered monkeys and human beings were followed fairly promptly by the reports of Netter and his associates in France and later by Amos and his co-workers in this country on the use of convalescent serum in the treatment of the disease. The French investigators used the subdural method of injection and believed that they had unquestionably proved the procedure to be of value. They stressed the time element particularly and urged that the injections be given in the earliest stages of the disease. The American observers employed the intraspinal and intravenous routes either directly into the blood vessels or indirectly by way of the subcutaneous tissues, and their results certainly justified their conclusions, that the earlier in the course of the disease the serum is employed in suitable doses, the more promise there is of benefit, and that the action of the serum appears to be more precise and definite in arresting paralysis than in rapidly bringing about its retrogression.

The adoption of the intramuscular method of administration of the convalescent serum in the treatment of poliomyelitis was determined on only after careful consideration of several cardinal facts associated with the disease. Poliomyelitis must be classed, at least in its early stages, as a general infection. Both the symptomatology and the consistent involvement of organs other than the nervous system, notably the liver, spleen and lymph nodes, bear irrefutable proof of this fact. Furthermore, the pathology of the disease with its striking perivascular infiltration in all the viscera supports the view that the blood and the blood vessels are intimately associated with the action of the virus on the parenchymatous tissues. Peabody, Draper and Dochez, in their encyclopedic monograph on poliomyelitis, call attention to the striking changes in the liver, characterized by areas of necrosis closely associated with the blood vessels, chiefly the portal vein, but also with the central or sublobular vessels. Under these circumstances, it can hardly be questioned that the virus is carried very largely by the blood stream.

The exact method whereby natural immunity is developed in this disease has not been determined, but whether it is a function of the tissue cells, as is more likely, or a property inherent in the blood makes no difference as far as the significant presence of immune substances in the blood stream of convalescent patients is concerned. When recovery occurs without treatment, it must be accomplished by means of the immune substances in the blood, and it seems logical to assume that, in furnishing these immune bodies artificially to an individual suffering from the disease, the closest adherence to the natural processes should be carried out. Poliomyelitis is therefore a disease in which the virus

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is transported very largely by the blood vessels, in which the effects of the virus manifest themselves by marked pathologic changes around these blood vessels and in which recovery is associated with the presence of immune substances in the blood. It seems reasonable therefore to assume that, in the treatment of the condition, a mode of injection should be chosen whereby the antisubstances are made available to the tissue cells at the earliest possible moment, particularly when one considers the tremendous importance of the time element in determining the question of successful treatment. Under ideal conditions, therefore, there is no doubt that the intravenous method of injection is desirable. From a practical standpoint, it is impossible. The difficulties incidental to procuring convalescent serum in sufficient amount and the time lost in carrying out those laboratory procedures necessary to make the intravenous injection of human serum a safe practice are disadvantages so great as virtually to preclude intravenous therapy as a common practice. On the other hand, the subcutaneous method of injection is definitely contraindicated if one is justified in drawing conclusions from analogous experiments with antitoxin in horse serum when the antitoxin is made available to the tissues two and one-half times as rapidly by the intramuscular as by the subcutaneous route. Even without experimental proof, it is certainly likely that absorption will take place more quickly in the depths of the muscles than from the subcutaneous tissues.

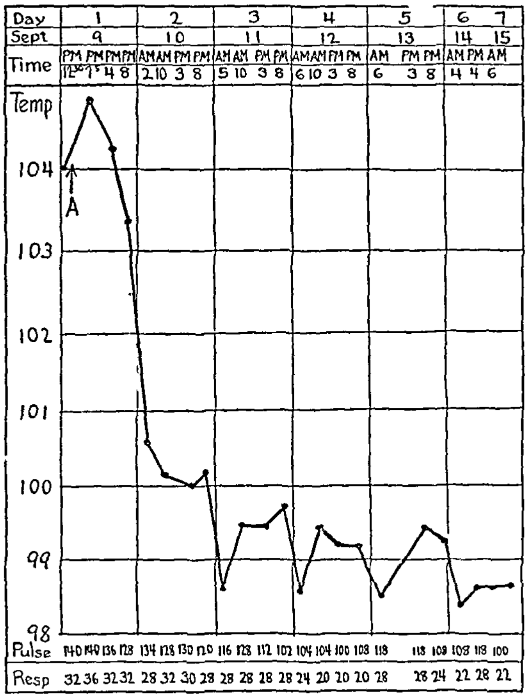

Chart 1.—Course in Case 2: A, 45 c.c. of convalescent serum.

Summarizing, one may state that the intramuscular injection of convalescent serum is at least theoretically a means whereby passive immunity may be achieved in a manner similar to that observed in the development of active immunity; namely, through the blood. For practical purposes it is the most logical method of administration.

REPORT OF CASES

Case 1.—A girl, aged 3½ years, at 5 p. m., Aug. 20, 1925, complained of pain in the neck, head and left arm. She slept two hours and awakened complaining of pain in the head; she had a slight fever. August 21, she was brought to the outpatient department and examination showed that she had marked tremor, loss of grasping power in the left hand, slight rigidity of the neck and positive Kernig sign on both sides. The abdominal reflexes were present, but not active. The temperature was 100.4; the pulse, 140. Lumbar puncture was not done, on account of evident diagnosis. The child was admitted to the hospital at 2:30 p. m., and 50 c.c. of convalescent serum was given intramuscularly, twenty-two and one-half hours after the onset of the illness. August 22, eighteen and one-half hours after the administration of the serum, the temperature was normal, tremor and weakness of left hand were still present, rigidity of neck and Kernig's sign were less pronounced, and movements of the lower extremities were normal.' August 23, the temperature was normal; there was some resistance in flexion of the neck and a suggestion of Kernig's sign on the right side. Tremor of left hand was very slight. The child made an uninterrupted recovery, without paralysis.

Case 2.—A girl, aged 7, was taken ill at 6 p. m., Sept. 8, 1925, with vomiting, headache and fever. She complained during the night of pain in the abdomen and legs, and she was actively delirious. At 10 o'clock the next morning, her temperature was 104, the delirium pronounced, there was marked tremor of the left hand and incontinence of feces and urine. The abdominal reflexes were not obtainable. The knee jerks were diminished, and there was marked rigidity of the neck and profound toxemia. She was admitted to the hospital at 12:30 p. m., eighteen and one-half hours after the onset of her illness. Lumbar puncture was not done, on account of the evident diagnosis. The patient was given 45 c.c. of convalescent serum intramuscularly. At 8 p. m., seven and one-half hours later, the temperature was 102.4. September 10, ten hours after administration of the serum, the temperature was 100 rectally, the patient was conscious and rational, there was slight rigidity of the neck and the tremor had disappeared. The knee jerks and Achilles jerks were diminished. September 11, the temperature was normal and the pulse rapid. It was difficult to elicit the knee jerks. The examination was otherwise negative. September 14, a neurologic examination revealed a normal child.

Case 3.—A boy, aged 5¼ years, Sept. 11, 1925, at 4 p. m., four hours before being seen, complained of being chilly, developed looseness of the bowels, described a sensation in the lower part of the back as if needles were sticking into the skin, and complained of headache, particularly when the top of his head was touched. The temperature was 101.8, which rose in three hours to 103.8. The boy looked ill; he was conscious and reacted promptly to external stimuli. There was no rigidity of the neck. The tongue protruded slightly to the left. Only a left upper abdominal reflex could be obtained on first examination; subsequently all reflexes were absent. The knee jerks were active. The patient had frequent diarrheal stools and complained of severe abdominal pain. There was an absolutely definite history of exposure for a period of two hours to a frank case of poliomyelitis, four days previously. Lumbar puncture was not done. September 12, at 2 a. m., 40 c.c. of fresh convalescent serum was injected intramuscularly, ten hours after onset. Ten hours

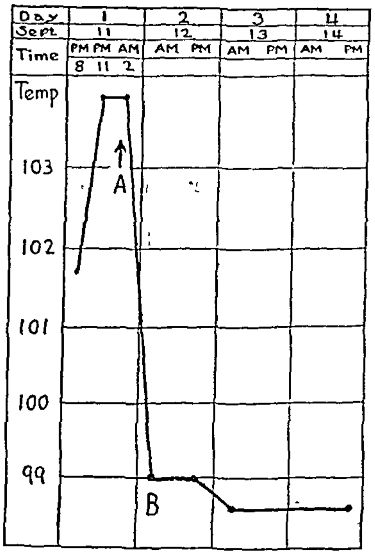

Chart 2.—Course in Case 3: A, 40 c.c. of convalescent serum; B, pulse, 120; respiration, 30.

after the administration of the serum, the temperature was normal and remained normal, although the pulse and respirations continued rapid for forty-eight hours and the bowel movements frequent for about seventy-two hours. September 15, four days after onset, the abdominal reflexes were still absent, but the child was otherwise normal. September 28, the left upper abdominal reflex returned; the others are still absent.

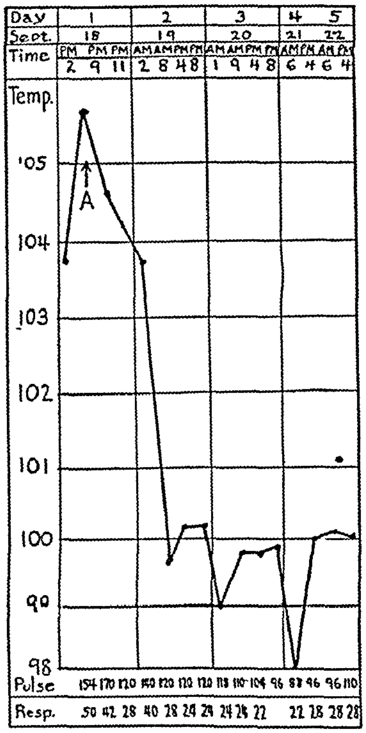

Chart 3.—Course in Case 4; *A*, 92 c.c. of convalescent blood.

CASE 4.—A boy, aged 5 years, Sept. 18, 1925, at 7 a. m., complained of severe headache, chilliness, and pain in the right lumbar region and in the left arm and the right leg. A severe diarrhea developed during the day, and the child vomited five times. Examination at 2 p. m., seven hours after the onset, showed a temperature of 103.8, knee jerks absent on both sides, slight rigidity of the neck, marked tremor of all the extremities, and profound delirium. Lumbar puncture showed 62 cells, mostly mononuclears. A diagnosis of fulminating poliomyelitis was made. The child was admitted to the hospital at 9 p. m., fourteen hours after onset. The temperature was 105.6; pulse, 154, and respiration, 50. The patient was extremely toxic, and a jerking tremor, particularly of the hands and arms, was discernible in all the voluntary muscles, including those of the eyelids, mouth, abdomen and lower extremities. He was semiconscious and did not cooperate, although he made a weak attempt at gripping hands. The pupils were sluggish to light. The abdominal reflexes were not elicited; there was a bilateral Kernig's sign, neck rigidity, and a positive Brudzinsky sign. The patient's general appearance suggested the most fulminating type of poliomyelitis, with death almost a certainty. Convalescent serum was not available. At 9 p. m., about fifteen hours after the onset, 92 c.c. of convalescent citrated blood was injected into the buttocks, in order to avoid delay incidental to procuring the serum. While this was being given, the extreme intoxication was manifested by repeated involuntary defecation and urination. At 10:45 p. m., one and three-fourths hours after injection, the temperature was 104.6; pulse, 160; respiration, 42. September 19, at 2 a. m., five hours after injection, the temperature was 103.6; pulse, 170; respiration, 42. Nine hours after injection, the temperature was 101; pulse, 140; respiration, 40; eleven hours after injection, the temperature was 99.8; pulse, 120; respiration, 28. The temperature remained normal throughout the day and never rose afterward above 100 rectally. The patient had twelve stools during the twenty-four hours and vomited five times; otherwise he was perfectly rational and feeling comfortable in every way. On examination, the child seemed very quiet, was not toxic looking, was rational, and cooperated. The knee jerks were present, but diminished. The abdominal reflexes were elicited. Nuchal rigidity was still quite marked. There were slight Kernig's signs on both sides. September 20, at 10 a. m., the patient complained of severe abdominal pain; he had two loose bowel movements during the day, but there was no vomiting. He seemed more listless and knee jerks were present, but diminished, and equal on the two sides. There was no paralysis. The following day he complained of some pain in the lower extremities; his neck was slightly rigid and tender, and the knee jerks were active. September 22, the patient was bright and conversative; he complained of some pain in the lower extremities. Reflexes were active, and tenderness in the nuchal region was much less marked. September 25, the patient was practically normal, on neurologic examination.

CASE 5.—A girl, aged 19, at 6 p. m., Sept. 24, 1925, had a large watery evacuation of the bowels. The next day the bowel movements had become very frequent, contained blood and mucus, and were associated with marked abdominal pain. She complained of profound dizziness, severe headache and pain in the back. At 7 p. m., the patient's temperature was 102.5; pulse, 80, and respiration, 20. She was acutely ill and toxic looking, and had a violent chill lasting two hours. The patient also complained of severe abdominal colic and pain in the head, shooting down into the back and thighs. There was general cutaneous hyperesthesia, no weakness or rigidity of the extremities, and a slight suggestion of a bilateral Kernig's sign. The reflexes all were hyperactive, except the radials and biceps, which were sluggish. The neck was not rigid. At 8 p. m., the temperature was 102.8 and the pulse 124. The patient was quite delirious at times, although rational at intervals. By 9 p. m., the reflexes were hyperactive, and there was a definite bilateral Kernig's sign and a slight neck rigidity. At 10 p. m. there was an increasing headache, very severe pain in the back and thighs, occasional spasmodic contraction of the muscles of the back and slight opisthotonos, numbness of both hands, a feeling as if the left hand were paralyzed, occasional fine tremor of the hand, and definite extensor weakness of the left wrist. At 10:30, there was a suggestion of muscle weakness in the right eye, the reflexes were profoundly exaggerated, and there was a Kernig's sign on both sides. The temperature was 104, and the patient was actively delirious. Lumbar puncture showed 25 cells, 88 per cent. lymphocytes, and 12 polymorphonuclears. At 11 p. m., five hours after the onset of symptoms, the patient was given 50 c.c. of convalescent serum intramuscularly. September 26, at 3 a. m., the temperature was 103.4 and the pulse 92. At 8 a. m. the temperature was 100.2 and the pulse 88. Severe headache persisted, but the patient was quite rational and comfortable. There were no more bowel movements, and

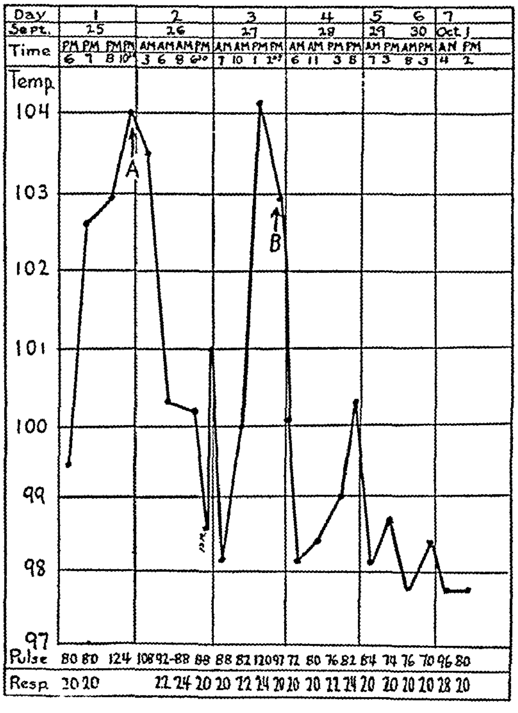

Chart 4.—Course in Case 5; *A*, 50 c.c. of convalescent serum; *B*, 70 c.c. of convalescent serum.

Kernig's sign was less marked. At 8:30 a. m., about nine and one-half hours after the administration of the serum, the temperature was 99. The patient was comfortable all day, with only a slight headache and backache. There was no repetition of the frequent bowel movements, but the temperature rose to 101 at 6:30 p. m. On the morning of September 27, the temperature was normal. Pain in the abdomen became suddenly severe, with three very loose bowel movements. The patient vomited twice and complained that headache and backache had again become very pronounced. She was very toxic looking, and there was a marked tenderness in the nuchal region, with slight rigidity on extreme flexion. The patient complained of pain in the lower extremities, when endeavoring to elicit the Kernig phenomenon, although the reaction was not distinctly positive. At 1 p. m., she had a slight chill followed by a rise in temperature to 104.2; the pulse was 120; the respiration, 24. At 4:30, 70 c.c. of convalescent serum was given intramuscularly, and at 6 the temperature was 101.8; pulse 96 and respiration, 20. At 11:30 p. m., the temperature was 100.2; the pulse, 90, and respiration, 20. September 28, at 8 a. m., fifteen and a half hours after administration of the serum, the temperature was 98.2. It remained normal all day. Headache, backache and numbness in the extremities practically disappeared; abdominal pain was not present, and diarrhea had ceased. The next day the patient was apparently normal, and October 1, no abnormal signs or symptoms were present. The patient is making an uninterrupted recovery.

COMMENT

Lumbar punctures were not done in Cases 1, 2 and 3, because the diagnosis seemed perfectly evident at the time of examination, and intrathecal therapy was not under consideration. It is perhaps lamentable, in view of the results, that the spinal fluid findings are not available, although it is not credible that the diagnosis in these patients can be questioned when one considers the histories, physical findings and prevailing epidemic. The symptoms were identical with those observed in other untreated cases in which typical paralyses occurred. Puncture was done in Cases 4 and 5 when it was realized that the results of treatment were striking and that publication of the data necessitated full confirmation of the diagnosis as far as this was possible, by a study of the spinal fluid. A typical increase in the cell count was noted in both of these instances.

The number of cases treated is not large, but the results are so consistent and so impressive, even in those patients who presented classical clinical pictures of the fulminating type of poliomyelitis, that it seemed advisable to publish the data in view of the prevailing epidemic, in the hope that use might be made of the method described for purposes of confirmation. It is scarcely necessary to enter more fully into the individual results beyond brief mention of Case 4. This patient was treated with whole blood, as his extreme condition did not seem to justify the delay entailed in separating the serum. In Case 5, a second dose of serum was necessary at the end of forty-eight hours, on account of a relapse probably associated with too small a primary dosage on account of lack of available serum.

Further comment is not essential because a consideration of the case histories and a study of the charts reveal in a lucid manner the character of the material and the effect of treatment. Realizing the danger and difficulty of drawing radical conclusions from so small a material, it seems sufficiently conservative and justifiable to conclude that the evidence indicates that preparalytic cases of poliomyelitis, even when presumably of the malignant or fulminating type, can be cured by intramuscular injections of fresh convalescent serum, if it is administered in adequately large doses at a sufficiently early period of the disease.

384 Post Street.

THE FEMALE SEX HORMONE

II. AN ANALYSIS OF FACTORS PRODUCING PUBERTY [*]

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DENVER

Why, in a given species, puberty sets in at a fairly fixed period of time has always remained a mystery. In recent years various glands of internal secretion have, without real evidence, been credited with a restraining or accelerating influence. Clinical record of premature puberty has accumulated and has shown that pineal, suprarenal or ovarian neoplasms are most often causative, although cases in which no abnormality other than the precocious puberty is discoverable are also not unusual (Lenz;[1] Reuben and Manning[2]).

Premature puberty can be experimentally induced by the injection of lipoid extracts of corpus luteum, placenta or follicle fluid. Such experiments have been performed since 1913 on rabbits, guinea-pigs and albino rats (Aschner;[3] Fellner;[4] Frank and Rosenbloom;[5] Frank;[6] Allen and Doisy;[7] Frank and Gustavson[8]). The effect shows itself in a marked hyperplasia of the female genital tubular system (vulva, vagina, uterus) and mammae.

Long and Evans[9] demonstrated that the ovaries of immature white rats when successfully transplanted into adult rats at once began to function (ovulation). This behavior would indicate the absence of some factor necessary for the development of puberty or the presence in the immature of some restraining factor.

Allen and Doisy,[7] employing follicle fluid or lipoid extracts of it, in the course of three days induced pubertas praecox in immature albino rats. This species is especially suitable as, at the age of puberty, the closed and solid lower third of the vaginal tract opens by canalization, and the vaginal smear, at the time of each estrus, consists exclusively of squamous epithelial cells.

The present investigation was undertaken to determine, on the one hand, whether restraining influences were at work, or, on the other, whether absence of the female sex hormone[8] was at fault.

As by previous investigation[6] we had convinced ourselves that follicular, corpus luteum and placental lipoids are physiologically identical, we used the female sex hormone obtained from human placenta exclusively. Young, immature rats from the same litter were employed. After from three to five days of injection, the vaginal canal opened and the vaginal smear proved characteristic of estrus. The smear could be kept positive for from eight to nine days at least, by continuing the injections.

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[*] From the Research Department, National Jewish Hospital for Consumptives, Denver; the Department of Anatomy, University of Colorado School of Medicine, and the Chemical Laboratory, Denver University.

[1] Lenz, T.: Arch. f. Gynak. **99:** 67, 1913.

[2] Manning, G. R., and Reuben, M. S.: Precocious Puberty, Arch. Pediat. **39:** 769 (Dec.) 1922.

[3] Aschner, B.: Arch. f. Gynak. **99:** 534, 1913.

[4] Fellner, O. O.: Arch. f. Gynäk. **100:** 641, 1913.

[5] Frank, R. T., and Rosenbloom, J.: Surg., Gynec. & Obst. **21:** 646, 1915.

[6] Frank, R. T.: Ovary and Endocrinologist, J. A. M. A. **78:** 181 (Jan. 21) 1922.

[7] Allen, Edgar; and Doisy, E. A.: Am. J. Physiol. **69:** 577-588 (Aug.) 1924.

[8] Frank, R. T., and Gustavson, R. G.: Female Sex Hormone and Gestational Gland, J. A. M. A. **84:** 1715 (June 6) 1925.

[9] Long, J. A., and Evans, H. M.: *The Oestrous Cycle in the Rat,* Mem. Univ. California **6:** 98, 1922.

At the time at which artificial premature puberty is reached, the ovaries of the experimental animals do not differ in any way from those of the untreated controls. The ovaries show no fully maturing follicles, but only follicles undergoing atresia before full maturation is reached. The puberty effect induced is therefore entirely due to the exhibited extracts.

If, however, after artificial premature puberty has been attained, these rats are watched further, it will be noted that, after a latent period of from five to seven days (at least from two to three weeks before the control sisters show this change), spontaneous ovulation may occur and recurring cycles appear every four to six days, as in the adults. The ovaries of these animals contain corpora lutea, thus demonstrating that the ovaries have begun to function.

These experiments not only indicate that puberty can be accelerated artificially by injection of the female sex hormone, as has been known, but also that as soon as the threshold is once passed, the ovaries, which appear to respond more slowly than the tubular system to the female sex hormone (after a short latent period) can function just as in the adult. No evidence of stimulation of ovogenesis and the new formation of ova could be obtained, even after continued injection of the hormone (up to twelve days).

TABLE 1.—*Production of Artificial Premature Puberty in Rats, Following Injections of the Female Sex Hormone*

Rat	Age at Beginning	No of Injections	No of Days Injected	No Days Until Vagina Opened and Smear Positive	Ovarian Cycle Began at Age of Days	Comment
1A	25	17	9	5	..	Killed, 33 days old
2A	25	24	12	4	..	Killed, 37 days, smear positive throughout
3A	25	6	3	3	35	
4A	25	6	3	5		Killed, 29 days old
5A	25	Control	..	..		Killed, 29 days old
6A	25	Control	..	..		Killed, 36 days old
7A	25	Control	..	45	45	
12A	24	5	3	3	34	Killed after second cycle; corpora lutea present
13A	24	5	3	3	35	
15A	24	5	3	3	34	
14A	24	Control		55	55	
16A	22	5	3	3	34	
17A	22	Control	..	52	52	

SUMMARY

1. Injection of the female sex hormone into immature female white rats in from three to five days causes opening of the canal and estrual phenomena (pubertas praecox), without the occurrence of ovulation.

2. After a further interval of from five to seven days, the artificially produced puberty may be followed by spontaneous, regular cyclical phenomena consequent to follicle ripening and ovulation.

3. If the threshold of puberty is once crossed, sexual maturity may be maintained spontaneously in immature rats.

4. These findings indicate that puberty results from the elaboration, in sufficient amount, of the female sex hormone, and that the advent of puberty is not due to the removal of an inhibitory influence, such as might be exerted by one or more of the glands of internal secretion, such as the thymus or the pineal.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PARA-THOR-MONE-LILLY. — Parathyroid Extract-Collip —A stable, aqueous solution containing the active principle or principles of the parathyroid gland of cattle and having the property of relieving the symptoms of parathyroid tetany and of increasing the calcium content of blood serum. It is standardized by its capacity to increase the blood serum calcium in normal dogs: one unit being defined as one one-hundredth of the amount of solution required to cause an increase of 0 005 Gm of calcium (Ca) in the blood serum of a twenty kilogram dog, the increase in calcium being determined fifteen hours following the injection of the solution

Actions and Uses—Para-Thor-Mone-Lilly relieves the tetany of parathyroidectomized dogs and by its continued daily administration in small doses further attacks can be prevented. Experiments with animals show, however, that frequently repeated small doses are cumulative and may raise the blood serum calcium to dangerous levels. It must be recognized that para-thor-mone-Lilly is a most potent therapeutic agent and that its use may be attended with great danger unless due precautions are taken to avoid overdosage and the consequent development of hypercalcemia.

Para-Thor-Mone-Lilly is claimed to be a specific in tetania parathyreopriva and to have relieved acute and chronic tetany following thyroidectomy, so-called idiopathic tetany, and infantile tetany The experimental clinical use of para-thor-mone-Lilly in conditions believed to be due to a low calcium content of the blood serum must be carried out with extreme caution

Dosage—In cases of true tetany where all the classical symptoms are fully developed, twenty to thirty units of para-thor-mone-Lilly may be administered. In severe cases, if necessary, this dose may be repeated two or three times within the first twenty-four hours, and the dosage then diminished as indicated by the condition of the patient. Doses ranging from ten to twenty-five units daily have been found sufficient to prevent the recurrence of tetany in chronic cases.

Para-Thor-Mone-Lilly may be administered subcutaneously, intramuscularly or intravenously.

Manufactured by Eli Lilly & Co, Indianapolis, under license from the University of Alberta. Patent and trademark applied for.

- *Para Thor Mone Lilly, P 20, 5 Cc* Each Cc contains 20 units

Fresh parathyroid glands of animals from which fat and connective tissue have been removed are ground and extracted with a hot acidified solution After maceration for five hours, the glands are separated and again extracted with a hot acidified solution The united extractions are cooled and the separated fat is removed Alkali is added to neutralize the liquid, and the precipitate which forms at the neutral point is removed by filtration and dissolved in acidified water (p_H 2 5). The hydrogen ion concentration of the solution is then adjusted to approximately p_H 7 and the precipitate is again formed. This precipitate is dissolved in slightly acidified water, diluted approximately to the desired potency, filtered through a Berkefeld filter and submitted to standardization and sterility tests

To determine blood serum calcium 10 Cc glass syringes are cleaned in a hot solution of potassium dichromate and sulphuric acid (800 Cc of concentrated sulphuric acid to 200 Cc of a saturated solution of potassium dichromate in distilled water) Then after repeated rinsings in distilled water, the syringes are placed in the hot air oven until thoroughly dry. The needles are cleaned in dilute sulphuric acid, washed with distilled water and dried in the oven Before bleeding, all syringes are examined carefully to ascertain that no moisture remains As blood containers, 15 Cc graduated Pyrex centrifuge tubes are used These are cleaned in the same manner as the syringes in the dichromate cleaning mixture These also must be thoroughly dry About 10 Cc of blood is drawn and is transferred to one of the clean, dry centrifuge tubes The tube of blood is centrifuged at once Two Cc of the clear serum are added to 2 Cc of distilled water in one of the 15 Cc centrifuge tubes This is shaken until the serum and water are well mixed, then 1 Cc of a saturated solution of ammonium oxalate is added, and the whole again well mixed After standing exactly 30 minutes, the tube is centrifuged at about 2,000 revolutions per minute for 10 minutes Then the supernatant fluid is poured off The rim of the tube is wiped dry, and inverted on a filter paper. It should drain in this manner for at least five minutes, and the mouth of the tube again dried Three Cc of ammonia water (2 Cc. of stronger ammonia water made up to 100 Cc with distilled water) are directed upon the precipitate by a fine spray from a wash bottle so as to loosen the precipitate The tube is now centrifuged and drained as before To the precipitate of calcium oxalate are now added 2 Cc. of normal sulphuric acid, and the tube heated in boiling water until the precipitate is dissolved The oxalic acid liberated is now titrated with freshly standardized one hundredth *normal* potassium permanganate.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 14, 1925

VACCINATION FACTS

The propaganda for the public health cannot afford to overlook any evidence of the success of preventive medicine. The cultists that profit by opposing preventive medicine and the misguided sentimentalists of the antivaccinationist and antivivisectionist types are constantly alert to attack present-day practical hygiene. So long as published statements are accepted uncritically at face value, regardless of their authorship, by a large part of the public, it becomes important that the facts of modern medicine be circulated as freely and widely as are the pronouncements of the nonmedical healing cults. In the battle for what is best, the most effective weapon usually is the dissemination of truth.

The value of vaccination as a preventive of smallpox is so firmly established that it should not require mention, let alone defense. The physician and the public health official are not infrequently called on, however, to act as protagonists in the promotion of vaccination. New and telling facts are available in recently published statistics from California. According to the university physician,[1] there has been no case of smallpox among the students of the University of California at Berkeley since 1907, when the regents adopted the rule that all entrants must possess satisfactory evidence of immunity to smallpox before they could be admitted. This is the record of perfection in a state in which more than 9,000 cases of smallpox were reported in 1924, making a case rate of 2.41 per thousand of population. Calculated on the student population at the university, twenty-four cases were to have been expected, if vaccination had not been enforced. There were, in fact, cases of smallpox among unvaccinated employees, while all students were absolutely protected during a local epidemic in 1913.

Legge[1] notes that the colleges of Massachusetts and New York have no record of smallpox. Both of these states have laws providing for the vaccination of school children, which again demonstrates the protection afforded by this public health measure. With this, we may contrast the situation in Utah, where health and school authorities are prohibited from excluding unvaccinated pupils from school or from requiring the vaccination of any person in the community. The University of Utah had a serious smallpox epidemic in 1922.

Eternal vigilance seems to be the price of many valued possessions. The unimpeachable good record of the policy of vaccination must be safeguarded against error. The United States Public Health Service[2] has reported eleven recent cases of postvaccinal tetanus, not due to any contamination of the vaccine but to the use of bunion pads as a vaccination dressing. In view of the fact that 25 per cent. of one lot of these glue-coated felt rings showed the presence of tetanus organisms, the menace of the undesirable practice is obvious.

Physicians who value the blessing of smallpox vaccination should make every effort to prevent the use of improper methods of dressing.

ALCOHOL—PURE AND IMPURE

The surreptitious production and distribution of alcoholic beverages have brought about the possibility of the consumption of improperly refined distillates obtained from crude sorts of fermentations. The drinking of "bootleg" liquor may lead to the ingestion of substances of unknown chemical composition and physiologic action, in addition to the inevitable ethyl alcohol. The "alcohol question" of today has thus become, from a medical standpoint, even more complex than it was in the preprohibition period.

In the discussions of the pathology of alcoholism, some of the organs of the body seem to have received comparatively little attention. The well known British report[3] of the Advisory Committee of the Central Control Board points out that the way in which alcohol acts in chronic alcoholism is complex. According to these foreign authorities, its injurious effects are only partially the direct result of the drug entering the system; they are largely brought about through its detrimental action on the lining membrane of the stomach and bowel, causing chronic inflammation and failure in the action of the digestive juices, and so promoting the absorption from the alimentary canal of poisonous matters (digestive and microbial toxins, as they are termed), which, in healthy conditions of the mucous membrane would be formed in lesser amount, if at all, and would certainly not be allowed to pass so freely into the system. According to the British report, it is indeed a question whether many of the morbid changes that occur in other organs in the course of chronic alcoholism may not really be secondary to these local disorders in the gastro-intestinal tract.

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[1] Legge, R. T.: Status of Vaccination in American Colleges, Pub. Health Rep. **40**: 1037 (May 22) 1925.

[2] Armstrong, C.: Tetanus in the United States Following the Use of Bunion Pads as a Vaccination Dressing, Pub. Health Rep. **40**: 1351 (June 26) 1925.

[3] Alcohol: Its Action on the Human Organism, London, H. M. Stationery Office, *1918*.

Studies that MacNider[4] has completed at the University of North Carolina indicate that ethyl alcohol in the doses administered by him over a period of weeks to animals is only slightly nephrotoxic. Naturally nephropathic animals are more susceptible to the toxic effect of the same amount of alcohol than are normal individuals of the same species. However, when the latter are given, instead of pure alcohol, an alcoholic distillate obtained without refining from a fermented mixture of cereal products, there develops evidence of its nephrotoxic action, which is shown functionally by a pronounced albuminuria. In nephropathic animals, the effect is even more pronounced. Associated with a reduction in urine formation occurs a decrease in the elimination of phenolsulphonephthalein, a retention of nonprotein nitrogen in the blood and a reduction of its alkali reserve. Fatty changes arise in the glomerular vessels, and the tubular epithelium also may show evidence of injury. The toxicity of the unrefined "distillates" from fermented mixtures is not primarily due to their content of ethyl alcohol but to some undetermined substance. Ethyl alcohol is assuredly not entirely guiltless of pronounced potencies, when its dosage exceeds a debated minimum in the body. It may even be debated whether there is any "minimum" that represents a zone of safety for the consumer. Whatever the answer may be, purified ethyl alcohol should not be held responsible for the insidious harm that even small quantities of undesired accompaniments in crude distillates may bring about.

VIEWS IN THE STUDY OF CANCER

Cancer has been described as one of the strangest and apparently most lawless of vital phenomena. Considerations of this sort help to explain why the study of its problems has attracted so many investigators throughout the world, regardless of the practical aspects of the subject. On the other hand, the picture of "helpless beings harboring unwillingly a rapacious object, which eats its way through tissues and saps vitality until death brings the inevitable end," has doubtless been the foremost reason for the flow of liberal financial aid into the coffers of cancer research in many lands. During the past summer there has been a recrudescence of popular enthusiasm and an awakening of hopes by the widely acclaimed "discovery" of the cause of cancer. The prominent features of this investigation, which doubtless suffered some undeserved distortion by an inadvisable publicity, have already been discussed in The Journal.[1] The theory advanced included two items that were of themselves likely to win immediate favor: there was the prospect of a culpable micro-organism, always a "popular" hypothesis in the etiology of disease in the past generation; and this was supplemented by the cooperation of an unidentified chemical substance—a reminder of vague biologic potencies such as have been expressed by the terms *hormone*, *vitamin*, enzymes and trephones.

Outbursts of enthusiasm for new findings in science are the excusable reactions of ardent investigators. They give zest to the search for truth; they help to sustain the energy of the worker. To the latter little harm is likely to result from the optimistic outlook of a colleague, for he has presumably learned to inspect new data with judgment and to use caution in interpreting them. It is rather the untutored person who does not know how to evaluate new announcements; consequently, he may experience an awakening of false hopes. And it is the quack who quickly attempts to profit by the promise of new attacks on disease; for he is prone to capitalize misfortune.

One of the means of cultivating a sane outlook on the debated fields of medicine is to secure clear points of view in many directions; to survey the possibilities with an adequate appreciation of the varied avenues of approach. This is particularly true in cancer research, in which there are many facts and many conflicts. If one group of observers points vigorously to the environment of the aberrant cells as the cause of their disorderly behavior, whether it be a micro-organism, a chemical substance, or a deficiency that constitutes its abnormality, one should recall that others have regarded the cancer cell as primarily present in the body and inherently parasitic—a differentiated cell bound on a work of destruction if by any chance it is released from its normal inhibitions. It is corrective to appreciate that malignant tumors may or may not contain micro-organisms; and that the development of neoplasms has been initiated by such varied agencies as tar, radium, the roentgen rays and animal parasites. A realization of this seeming diversity of etiologic sequences exerts a sobering influence.

As cancer is a manifestation of growing cells, it may be helpful to consider critically the ordinary biologic experiences of the body's smallest structural units. When the organism becomes well developed it largely ceases to acquire new tissue. As Lee has expressed it, the period of active cell growth and division has nearly come to an end; the existing cells have learned what they are to do, and the real business of one's physical life proceeds according to law and system. Presently cell division and growth may start anew; "it is unbridled, rapid, often tumultuous, and it rudely interrupts the orderly processes of life."

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[4] MacNider, W. deB.: A Preliminary Paper Concerning the Toxic Effect of Certain Alcoholic Beverages for the Kidney of Normal and Naturally Nephropathic Dogs, J. Pharmacol. & Exper. Therap. **26**: 97 (Sept.) 1925

[1] The Cause of Cancer, London Letter, J. A. M. A. **85**: 368 (Aug. 1) 1925; The Latest Cancer Parasite, editorial, ibid. **85**: 438 (Aug. 8) 1925.

As one of the many contributions to the understanding of the genesis of tumors, Burrows[2] and his co-workers at St. Louis have pictured the change as a disturbance in the balance between growth and function in the body units. As they point out, the organism is a mass of cells. It has come about through a definitely regulated growth of the egg cell and the formation of the different types of cells. It matures and functions through a gradual change in the cells, so that they use their energy for function rather than for growth. This organism maintains itself for a given period of time in that enough energy is used for growth to take care of the destruction suffered by the cells in their function. According to Burrows and Johnston, however, there has never been any evidence that the functioning body cells may not under the proper conditions utilize their entire energy for growth. *It is evident that in such a colony* of cells as the body of man, in which these units as a mass are using their energy for function, if one cell breaks away from the conditions that force it to function and acquires the property of independent growth, it must soon destroy its neighbors weakened by their functional burdens.

The foregoing is, of course, merely a restatement of the view of one school of cancer research which holds that the irrepressible growing cell is derivable from any tissue cell, rather than the sudden development of some repressed embryonic rest. The cancer cell is thus not primarily different from the normal cell. The problem is to explain the active independent growth of body cells. Burrows believes that it depends on a crowding of the cells together in a stagnant area or an area having a relatively poor blood supply. Foreign agents, including bacteria that induce cancer, act by promoting the formation of dense cellular masses.

The special claim of the hypothesis advanced by Burrows is that the factors of stagnation and cell crowding become important for growth because the growth of body cells depends on a certain concentration of a primary product of the oxidation of the cells, the "archusia," or driving substance of the cell. Ordinarily this is withdrawn into the blood. When it accumulates, cells begin to grow. Function, as Burrows expresses it, is something that exists only in an environment that inhibits an independent growth. It occurs only in a richly vascularized tissue. Any tissue, he adds, may be made cancerous by anything that frees the cells of the effect of their intercellular substances and an active circulation of blood. These are, let it be clearly emphasized, only views, but they enable one to envisage many aspects of the problem and unite them into one of many synthetic pictures.

Current Comment

HEATING AND RESPIRATORY DISEASE

Among the various panaceas that have been proposed for prevention of respiratory disease are nasal operations, tonsillectomy, radical tooth extraction, vaccines, sprays, gargles and, during epidemics, the wearing of masks. Ventilation and heating have demanded their share of interest, and two recent writers emphasize this phase of the problem. From a dependable source in Boston comes the assertion that the maintenance of a normal respiratory mucous membrane in the hot dry air customary to our houses and offices is impossible. "It would do no harm," says the author, "to remind parents that their children's tonsils would give no more trouble in winter than in summer, and might not have to be ripped out, if the child were given air fit to breathe." Just as American heating has been condemned, English heating methods—or the lack of them—have been praised. This is, *in part, the view* taken by Hubbard.[1] If the average temperature of American houses is too high, their humidity too low, and Americans unhealthy as a consequence, it is argued, obviously Englishmen, whose houses are not overheated and the air in them not dried out, should show a better health record. Strictly speaking, facts on which to determine this point are unavailable, for respiratory diseases in their milder forms are not reportable. Deaths, however, are recorded, and the inferences drawn from comparative mortality statistics for 1921 are rather unexpected. In 1921 the combined death rate per hundred thousand from whooping cough, diphtheria, *influenza, pneumonia and an unclassified* group of other respiratory diseases (tuberculosis excepted), was: United States, 136.4; England and Wales, 155.09. If tuberculosis of the respiratory system and bronchitis are included, the result is: United States, 231.4; England and Wales, 332.4. Authors who stress the importance of correct temperature and humidity in relation to the prevention of respiratory disease are no doubt warranted in their assertions, but it would seem to be unwise, in the light of our present knowledge, to attach too much importance to any single etiologic factor.

HUMAN TEARS

Man is unique in more ways than one. The poet has referred to the significance of our "footprints on the sands of time." Less idealistic laymen occasionally observe the thumb-prints of their fellow men; and surprising are the identifications and discoveries that have been made thereby. Our blood carries within its chemical self the proof of its species identity, and it may betray even closer human relationships. In lesser degree the evidence of such identity is present in other body fluids, in milk and in muscle. Our "flesh and blood" thus literally bear the stamp of a common, yet independent, origin. And now we are assured that even the tears tell a similar story. At any rate, it has been demonstrated[1] that in the human lacrimal secretion there is a protein which, when tested by immunologic methods, seems to be common to all samples of human tears, but is different from that of the tears of other animals. It also appears to be different immunologically from the human blood proteins and those of other secretions and tissues. Our tears may be more than the expression of joy or sorrow; for with them goes forth the special chemical imprint of their human origin.

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[2] Burrows, M. T., and Johnston, C. G.: The Action of Oils in the Production of Tumors, Arch. Int. Med. **36**: 293 (Sept.) 1925.

[1] Hubbard, Thomas: Hot Air Comfort, J. A. M. A. **85**: 1022 (Oct. 3) 1925.

HEART DISEASE

Dyspnea, edema and sleeplessness, with a hopeless attitude on the part of the patient, his family and his physician, make up the picture of advanced heart disease. Fully as distressing, in a slightly different way, are the conditions surrounding cardiac decompensation in nearly any stage. Fifty per cent. of the cases occur in persons who should be in the prime of life,[2] with earning capacity and family expenses both at their highest. As a result of heart disease, all of those afflicted are partially or wholly disabled, and the families of a third of them are partially or wholly dependent on charity. McLean[3] suggests, in the first number of the new periodical devoted to diseases of the heart, "Let us learn the lesson taught by the tuberculosis campaign, that we have not materially lessened the number of tubercle bacilli, but have lessened the fields on which they could grow." He would prevent heart disease through increasing resistance to communicable illnesses—the frequent precursors of cardiac disease. School children would be the beneficiaries of his campaign by yearly examination of all pupils between the ages of 6 and 12, first, to discover defects; secondly, to note the results of efforts at correction. "The tuberculosis campaign took twenty years," he says, and he prophesies optimistically that "the heart disease campaign will probably not take quite so long."

RICKETTSIASIS

The rôle of insects as vectors of disease for both man and animals has been clearly established, although practically nothing was known about it forty years ago. The arthropods act not only as mechanical carriers of disease germs but also as intermediate hosts. Mites, ticks, lice, bugs, mosquitoes, flies, fleas and their ilk have been incriminated at one time or another. Since Manson, in 1879, proved that insects, in the case of *Filaria* and the mosquito, are the immediate hosts of human parasites, many important diseases have been shown not only to be transmitted by arthropods but to be exclusively transmitted by certain species. The names of the maladies have become increasingly numerous; and the general mode of transmission of the infections has in many cases been definitely ascertained before the etiologic micro-organism was definitely established. Of late, considerable attention has been focused on certain organisms of minute size that have been designated as Rickettsiae. Their relationships are still rather obscure, but they are evidently concerned with Rocky Mountain spotted fever, typhus fever and trench fever. To these the studies of Cowdry[1] in South Africa have added heartwater, a specific febrile disease affecting sheep, goats and cattle there. This, as Cowdry points out, will enlarge our conception of the scope of the pathogenicity of these micro-organisms by the inclusion of a disease of domestic animals that never is found in man. The bringing of new diseases under the general heading of "rickettsiosis" suggests to Cowdry the likelihood that the limitations of this group have not yet been established and that other febrile diseases of unknown etiology, which are insect-transmitted, may eventually be found to fall in the same category. How fitting that the general designation should perpetuate the name Ricketts, a martyr to the cause of science in the investigation of insect-borne diseases.

REDUCTION OF TAX ON PHYSICIANS UNDER HARRISON LAW

On November 10, the Ways and Means Committee of the House of Representatives approved a reduction from $3 to $1 of the tax levied on physicians under the Harrison Narcotic Law. When a beneficent government decided to make the medical profession bear a part of the burden of the enforcement of the Harrison Narcotic Act through assessing physicians the sum of $1 in registering them under the act, the burden was assumed without complaint. When legislators who are charged with providing the government with funds sufficient to conduct its activities concluded that two additional dollars might be added as a war measure, the medical profession cheerfully accepted this additional burden. But when the war taxes were otherwise reduced and the tax of $3 was continued, perhaps as a simple method of increasing revenue, our profession revolted. It seemed sufficient for physicians to assume the task of keeping endless personal records without having to pay as well for the keeping of records in Washington. In THE JOURNAL, Feb. 17, 1923, appeared an editorial comment protesting against this additional tax, particularly as it was shown that by the additional assessment the United States actually reaped a profit on the traffic in narcotic drugs. Again in 1924, THE JOURNAL, in its consideration of the recommendations submitted by Secretary Mellon, protested against the lack of any specific provision for a reduction in this indefensible tax Regardless of these protests, the Commissioner of Internal Revenue attempted, on several occasions, to justify this tax In THE JOURNAL, Dec. 10, 1924, it was pointed out that the government had again profited by several hundred thousands of dollars from this tax. The House of Delegates, at the annual session of the American Medical Association held in Atlantic City last May, again urged the Board of Trustees to do all in its power to reduce this tax. Moreover, the issue of the *American Medical Association Bulletin* for June, 1925, presented a statement by Dr. W. C. Woodward, secretary of the bureau, giving the complete facts. Finally, the *American Medical Association Bulletin* for October, 1925, published the statement which the Board of Trustees, acting on instructions from the House of Delegates, had transmitted, to the Secretary of the Treasury, the chairman of the Ways and Means Committee of the House of Representatives, and the chairman of the Finance Committee of the Senate. Here is clear evidence that a united medical profession, arguing a just cause, can secure promptly a satisfactory verdict.

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[1] Fleming, A, and Allison, V D On the Specificity of the Protein of Human Tears, Brit J. Path **6**: 87 (April) 1925

[2] Carr, J G The Economic Phases of Cardiac Disease, Am Heart J **1**: 62 (Oct) 1925

[3] McLean, J D · An Official Method for Lessening Heart Disease, Am Heart J **1**: 107 (Oct) 1925

[1] Cowdry, E V Studies on the Etiology of Heartwater, I, Observations of a Rickettsia, Rickettsia Ruminantium (n sp) in the Tissues of Infected Animals, J. Exper Med. **42**: 231 (Aug) 1925, II, Rickettsia Ruminantium (n. sp) in the Tissues of Ticks Transmitting Disease, *ibid.*, *p. 253.*

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Plague Infected Rats.—In the week ending October 3, three plague infected rats were found at Los Angeles, according to *Public Health Reports*. The number of rats trapped during the week was 2,375; of the squirrels and mice trapped, none were found to be infected. The date of the last human case of plague in Los Angeles was January 15.

Chiropractic College Sues Chiropractic Board.—The Berkeley Chiropractic College has gone to court to restrain the state board of chiropractic examiners from conducting an investigation of that institution. The president of the "college" considers, it is reported, that since no member of the board was a licensed chiropractor for three years prior to his appointment as required by law, such an investigation would be a violation of the school's rights.

Smallpox Control in Richmond.—When smallpox appeared in a public school in Richmond, October 12, the health officer notified the principal of the school that he would be on hand the following morning to exclude from attendance for twelve days every teacher and pupil who had not been successfully vaccinated. Such evidence could not be given by 595, and they were sent home; the next morning 233, who had been vaccinated in the meantime, returned to school and the next morning 160 more newly vaccinated pupils returned; eighty more vaccinated pupils returned on Friday.

New Classification in Telephone Directory.—The Southern California Telephone Company has agreed to insert in its next directory a special list in the classified section entitled "Physicians and Surgeons, Members of the Los Angeles County Medical Association." There will be a brief statement concerning the association at the head of the list, and the name, address, telephone number and specialty of those who desire this service. The council of the Los Angeles County Medical Association authorized the new classification, October 19. The cost to those who desire to have their names inserted will be 50 cents per line, monthly.

Society News.—Col. Robert E. Frith, federal prohibition administrator, Judge William M. Bowen, and Capt. Otis Sayre, head of the permit department, spoke before the Los Angeles County Medical Association, November 5, on "The Relation of the Doctor to the Eighteenth Amendment"; Dr. Steele F. Stewart on "Convalescent Care of Infantile Paralysis"; Dr. Sterling N. Pierce on "Kielland Forceps," and Dr. Meyer H. Newman on "The Maternal Hazard in Parturition."——Dr. Vittorio Putti, director, Rizzoli Institute, Bologna, Italy, will address the society as the guest of the Los Angeles Orthopedic Society during the week of November 16.

Abortionist Wanted for Murder.—A man who calls himself "Dr. W. W. Watkins" is wanted by the police of Los Angeles, according to the *Police Bulletin* of that city for October 13. The *Bulletin* states that warrants are on file for the arrest of this person charged with second degree murder on the accusation of performing a criminal operation on a 17-year-old girl. The *Bulletin* states further that this man uses a physician's certificate formerly belonging to the late Dr. W. W. Watkins. His method is to go to different cities and advertise in the papers as a specialist in women's diseases. The records of the American Medical Association show that Dr. W. W. Watkins, a reputable physician, died in 1901. In 1914 we attempted to learn something of the so-called Watkins Sanitarium at Pasco, Washington. A Pasco physician wrote at that time that the self-styled "W. W. Watkins" had originally been the stable man for the real Dr. Watkins, and that on the death of the latter stole the doctor's diploma and came to Pasco, Wash., where for some time he operated a so-called sanatorium, which was nothing more than an institution for criminal abortions. The doctor added at that time (in 1914) that "W. W. Watkins" was in the Washington state penitentiary.

COLORADO

Personal.—Dr. Frank H. Zimmerman has been appointed medical superintendent of Mount Airy Sanatorium, Denver. ——Dr. Chester H. Elliott has accepted a full-time appointment with the department of pathology of the School of Medicine of the University of Colorado.

Increase in Death Rate.—The death rate for Colorado for 1924, according to the Department of Commerce, was 1,247 per hundred thousand of population, as compared with 1,242 in 1923. The increase is accounted for largely by increases in death rates from measles, pneumonia and nephritis.

FLORIDA

Hospital News.—According to *Hospital Management*, Dr. Maurice H. Tallman, Miami, has purchased land for the erection of a $1,500,000 clinic and sixteen story hospital-hotel on Douglas Road and Coconut Grove Drive, Coral Gables.

Personal.—Dr. James B. Griffin, St. Augustine, has been appointed a member of the Florida State Board of Medical Examiners to succeed Dr. William J. Buck, Jacksonville, resigned.——Dr. Cecil Brannen has been elected city health officer of Coral Gables.

GEORGIA

Personal.—Dr. John D. Jungman, Philadelphia, has been appointed health officer of Columbus to succeed Dr. James A. Thrash, Jr., resigned, effective, November 1.

County Society Clinic.—The president of the Medical Association of Georgia, Dr. Frank K. Boland, writes in the state journal that at the clinic conducted by the Bartow County Medical Society recently at Cartersville, 763 children were examined before entering school, 106 had their tonsils removed, forty-eight had glasses fitted and twelve were found to have hookworm disease, and one tuberculosis and two trachoma. More than 400 children had teeth extracted. The "whole county" cooperated to make the clinic a success. The home of Mr. Dodd Warren was converted into a temporary hospital in which thirty-five beds and four operating tables were set up. The dentists of Bartow County cooperated with the medical society.

ILLINOIS

Smallpox in Bloomington.—An outbreak of smallpox occurred in Bloomington in which on October 29 there were more than fifty cases. The first death occurred, October 30. The city health director ordered that all public gatherings be abandoned until further notice.

Personal.—Dr. Victor H. Bassett, health officer of Savannah, Ga., has not accepted the position of health officer of the Quincy public health district.——Dr. William Jones, Aurora, was adjudged insane by a commission before Judge Hoover, October 29, it is reported, and ordered to the Elgin State Hospital.

Epidemic of Catarrhal Jaundice.—There has been for the last several weeks an "epidemic of catarrhal jaundice" at Batavia. A Fellow of the American Medical Association writes that his associate has seen about forty cases. The jaundice appears after about a week of prodromal symptoms, and in at least two cases in which the blood was examined a spirillum was found. There have been no fatalities.

Psychiatric Community Service.—The psychology department of Northwestern University will supervise a free clinic at Evanston at the old college building, south campus, for the examination of persons mentally deficient and of cases of emotional and behavior disorders, on Thursday afternoons. It will be at the disposal of Evanston's public schools, hospitals, police department and social service agencies. The clinic will be separate from the routine of the university and will be a branch of the clinic in Chicago. Dr. Herman M. Adler, director, Institute of Juvenile Research, will cooperate in providing the service of a psychiatrist.

Chicago

Hospital News.—The North Chicago Hospital, 2551 North Clark Street, is planning a four story addition to its building. ——John E. Ransom has resigned as superintendent of the Michael Reese Dispensary.

Rush Medical Alumni Fund.—As a contribution from Rush Medical College Alumni to the development fund of the University of Chicago, a committee of physicians throughout the country has been organized, under the leadership of Dr. Ralph W. Webster, Chicago, to raise $250,000. Rush Alumni have already contributed $155,000 toward this fund. During Dr. Webster's absence in Japan with the University of Chicago baseball team, Dr. Wilber E. Post, Chicago, is in charge of the campaign.

Society News.—Dr. Edward H. Hatton, professor of pathology, Northwestern University, Dental School, and special research investigator of the American Dental Association, will address the Chicago Ophthalmological Society by invitation, November 16, at the Hotel Sherman, on "The Dental Factor in the Etiology and Treatment of Iritis." Dr. Wendell C. Phillips, New York, President-Elect, and Dr. Charles W. Richardson, Washington, D. C., Trustee, of the American Medical Association, will be guests of honor at the meeting of the Chicago Laryngological and Otological Society, Hotel Sherman, November 19. Dr. George E. Shambaugh will present a statistical study of the 290 children in the Chicago public schools for the deaf and speak on "Congenital and Acquired Deafness—Partial and Total Defects, Vestibular Responses, Consanguinity as a Cause for Deafness."

INDIANA

Outbreak of Infantile Paralysis.—Following a conference of the board of health and school board of New Albany, October 27, the public schools were ordered closed on account of an outbreak of infantile paralysis in a district school near this city. An order was also issued, it is reported, against children attending other public functions in the community. At this time there had been only one case in the public schools.

IOWA

Two Hundred and Fifty Physicians Fail to Reregister.—At present more than 250 physicians in Iowa have not complied with the recent state law which requires physicians to renew their certificates annually and pay a renewal fee of $1 to practice medicine in the state. The state commissioner of health writes that he is continually receiving letters from insurance companies, the federal narcotic bureau and the federal prohibition director wanting his office to certify some physicians as being reregistered, and that this cannot be done unless a physician has paid his renewal fee. It seems possible that some physicians have failed to register on account of not knowing of the new law, although efforts have been made to reach every physician in the state (The Journal, June 27, p. 2009).

KENTUCKY

More Schools Closed on Account of Infantile Paralysis.—The Jefferson County Board of Health ordered the county public schools closed, October 26, on account of the outbreak of infantile paralysis. The Louisville schools were ordered closed several days ago. There had been reported up to October 29, according to the *Jeffersonian*, thirty-nine cases, only two of which were in the county outside of Louisville.

MASSACHUSETTS

Hospital News.—The Free Hospital for Women, Brookline, celebrated its fiftieth anniversary, November 4. Among others, Dr. W. W. Chipman, professor of gynecology and obstetrics, McGill University Faculty of Medicine, Montreal, gave an address.

Society News.—The Middlesex East District Medical Society celebrated its seventy-fifth anniversary at the Winchester Country Club, Winchester, October 21. Among others, Dr. James S. Stone, president of the Massachusetts Medical Society, gave an address.——Dr. Leo M. Davidoff addressed the Harvard Medical Society, Boston, November 10, on "With MacMillan in the Far North."

Personal.—Dr. Winfred Overholser, Boston, has been appointed to the faculty of Boston University School of Medicine to take charge of the work in psychiatry, succeeding Dr. Nathaniel Emmons Paine, who was West Newton professor of psychiatry in this school for many years.——Dr. Eugene A. Darling, after fifteen years' service as president of the Cambridge Anti-Tuberculosis Association, requested at a recent meeting to be relieved, and Dr. H. F. Day was elected to succeed him.

Appointments at Harvard Medical School.—According to the *Boston Medical and Surgical Journal*, the following appointments were made, at the October meeting of the faculty of medicine of Harvard University:

Dr. John Ignatius Bradley, assistant in anatomy.
Dr. Lawrence Wells Sloan, assistant in anatomy
Dr. Fei-fang Tang, research fellow in bacteriology
Dr. James Hitchcock, assistant in medicine.
Dr. Millard Smith, assistant in medicine.
Dr. Henry S. Forbes, research fellow in neuropathology.
Dr. Henry Pinkerton, instructor in pathology.
Dr. Shields Warren, instructor in pathology.
Dr. Wyman Whittemore, instructor in surgery
Dr. William L. McClure, alumni assistant in surgery
Dr. William A. Rogers, assistant in surgery.
Dr. Horace K. Sowles, assistant in surgery.
Dr. Charles E. Teel, assistant in genito-urinary surgery
Dr. Willard O. Thompson, research fellow in medicine
Dr. Tracy J. Putnam, Arthur Tracy Cabot fellow in charge of the laboratory of surgical research.

The following reappointments were made:

Dr. Maurice Fremont-Smith, assistant in medicine.
Dr. Harry C. Solomon, instructor in neuropathology.
Dr. Donald J. MacPherson, assistant in neuropathology.
Dr. Frank Fremont-Smith, assistant in neuropathology
Dr. William G. Lennox, research fellow in neuropathology.
Dr. George H. Binney, assistant in surgery.
Dr. Grantley W. Taylor, assistant in surgery.
Dr. Lester R. Whitaker, Arthur Tracy Cabot fellow in charge of the laboratory of surgical research.
Dr. Albert A. Hornor, assistant in tropical medicine.

MICHIGAN

Ford Hospital Abandons Flat Rate System.—The staff of the Ford Hospital, Detroit, has been officially informed, it is reported, that the flat rate system of charging for treatment has been abandoned and that hereafter charges will be made on an "income basis." Under the new plan the maximum limit on surgical fees will be $1,000, and the maximum limit on medical charges $70 a week. According to *Detroit Saturday Night*, there has been a deficit of $2,400,000 in the period during which Mr. Ford has operated the hospital.

"Minimum Program" for County Societies.—Thirty-four of the county medical societies had adopted the "minimum program" for county medical societies at the time the November *Journal of the Michigan State Medical Society* was published. The county medical society was considered during the year by the council and other officers of the state society and by officers of various county medical societies; from the suggestions offered, a program was developed and approved. There recently has been a series of meetings of the constituent society officers and councilors to take up the adoption of the minimum program, and at each meeting the societies have given unanimous approval. Those societies which have adopted the program have placed themselves on a sound business and educational basis

Personal.—Mr. W. T. Bishop, president of the Lansing Board of Health, has resigned.——Dr. William T. Dodge, Big Rapids, formerly president of the Michigan State Medical Society, has been appointed chief surgeon of the Michigan Soldiers' Home, to succeed Dr. Howard A. Grube.——Dr. Silas B. Frankhauser, Hillsdale, has been reappointed county physician.——Dr. Carl G. Fahndric, Northville, has been appointed medical director of the Calhoun County Hospital located east of Battle Creek.——Dr. George L. LeFevre, and Dr. Guy L. Connor, Detroit, have been elected president and secretary, respectively, of the state board of registration in medicine.——Dr. Leonard F. Thalner, city physician of Jackson, tendered his resignation, to take effect November 1, to engage in private practice; his successor is Dr. Earl B. Ritchie.——The Eugenics Society of the United States has awarded the first trophy prize in the recent fitter families contest, conducted at the Michigan state fair, to Dr. Thomas Reese Foster, Detroit (The Journal, August 29, p. 684).

Dedication of New University Hospital.—The board of regents of the University of Michigan, Ann Arbor, announces the dedication of the New University Hospital, November 19-21. The formal exercises will take place in the Hill

Auditorium at 8 p. m., the speakers being Drs. Victor C. Vaughan, Washington, D. C.; William J. Mayo, Rochester, Minn., and William S. Thayer, Baltimore. The guests of honor will be Governor Groesbeck, Senators Couzens and Ferris, Representative Michener, and Drs. Cyrenus G. Darling and Frederick C. Warnshuis, president and secretary, respectively, of the Michigan State Medical Society. There will be clinics at the hospital, November 20, by Dr. Thayer and Dr. Mayo, an inspection of the hospital in the afternoon, and a general meeting in the evening, at which the dean, Dr. Hugh Cabot, will preside and which Drs. Harley A. Haynes, director of the University Hospital, James B. Herrick, Chicago, and Charles P. Emerson, Indianapolis, will address. Saturday morning there will be a continuation of clinics by distinguished physicians of the state of Michigan. Dr. William J. Mayo will deliver the annual Mayo Lecture, in the Natural Science Auditorium, November 19, at 4:15 p. m., on "Splenic Syndromes."

MINNESOTA

Radio Talks.—The Minnesota State Medical Association has arranged for a series of lectures on medical topics to be given by prominent Minnesota practitioners of medicine over the radio from station WCCO. The first six numbers were: Infantile Paralysis, October 9; Pregnancy and Childbirth, October 16; Facts About Insanity, October 23; Blood Pressure, October 30; Your Heart, November 6; and Prevention of Tuberculosis, November 13.

Hospital News.—A delegation from the Sisters of St. Francis, St. Paul, recently inspected the University of Southern Minnesota, Austin, to determine its suitability for conversion into a hospital.——The Bethel Deaconess Hospital, Mountain Lake, is building a nurses' home.——A new cottage for women, having a capacity of seventy-five patients, at the St. Peter State Hospital, was recently opened. The hospital now has a population of more than 1,500.

Society News.—Dr. Leo G. Rigler addressed the Hennepin County Medical Society at a noonday meeting, October 28, on "Roentgen-Ray Visualization of the Gallbladder," and Dr Claude C. Kennedy on "Volvulus of the Small Intestine."——The annual meeting of the Hennepin County Medical Society will be at noon, November 18. At the noonday meeting, November 4, Dr. Arthur A. Wohlrabe spoke on "Diagnosis and Treatment of Duodenal Ulcer," and Dr. Verne S. Cabot on "Surgical Treatment of Duodenal Ulcer."——At the regular meeting of the Minnesota Academy of Medicine, which was held at Rochester, November 12, Dr. Charles H. Mayo gave clinical demonstrations of cancer of the right colon; Dr. Plummer, the use of iodin in toxic goiters; Dr. Edward C. Rosenow, studies in poliomyelitis; Edward C. Kendall, Ph.D., progress in study of thyroxin, and Dr. Frank C. Mann, studies in liver function. There was a dinner at the University Club Rooms at the Kahler in the evening.——Dr. Samuel E. Sweitzer gave a lantern demonstration of skin diseases before the Hennepin County Medical Society, November 11, and Dr. John F. Curtin spoke on "Antrum Infection in Children and Its Treatment."——The headquarters of the Minnesota State Medical Association has been moved to 11 West Summit Avenue, St. Paul, the new home of the Minnesota Public Health Association.

MISSOURI

Hospital News.—The new $400,000 Christian Hospital at Carter and Newstead avenues, St. Louis, was recently opened.

State Board Awaits Decision in Test Case.—The action to be taken by the state board of health on citations pending against "physicians" to show cause why their license should not be revoked for alleged fraud will be determined largely by the decision in the test case now before the state supreme court. The new president of the board, Dr. William A. Clark, Jefferson City, said, according to the St. Louis *Post Dispatch*, that the board is tied up by various injunction proceedings but that it will push the remaining cases if it has jurisdiction. The case testing the jurisdiction of the board of health now before the supreme court grew out of a suit filed by Dr. Clara W. McGrew, St. Louis, to enjoin the board from proceeding with its case involving her license. The board then obtained a "preliminary of prohibition" in the supreme court to prevent the circuit judge in St. Louis from proceeding with the injunction case. The issue now before the supreme court is whether the writ shall be made permanent; if so, the ruling would uphold the jurisdiction of the board.

Dr. Adcox Confession.—The St. Louis *Star* is publishing serially the confession of Dr. Robert Adcox, who is under federal indictment and sentenced to serve two years in the Missouri penitentiary for his connection with medical diploma mills. Adcox relates how he arranged to secure high school certificates from public school officials in several states, and how he sold them to illiterate or poorly educated students for the purpose of entering certain low-grade medical schools. In future instalments, he says he will tell how "he dabbled in medical diplomas." The only other name involved thus far in the confession is that of Owen T. Owen, Chicago (The Journal, July 5, 1924, p. 46). In his testimony, November 4, in quo warranto proceedings brought by the state to revoke the charter of the St. Louis College of Physicians and Surgeons, Adcox testified that Dr. Waldo H. Briggs, dean of the St. Louis College of Physicians and Surgeons, had appointed him a solicitor of students for the school with the understanding that whatever was collected from the applicant in the way of tuition was to be equally divided between them. Adcox said that he charged the student in proportion to what he had and according to how badly he wanted to graduate, and that this amounted sometimes to as much as four times the regular tuition fee. Adcox said that his students frequently entered the St. Louis College of Physicians and Surgeons as late as Christmas and got credit for attending classes from the beginning of the term in October. There were plenty of cases, he said, in which students matriculated in October, went right home and got their degrees the next spring without ever having attended a class. Adcox said that sometimes he would take his students to the school where Dr. Waldo H. Briggs, the dean, would have his secretary make out cards showing attendance at the school for the freshman, sophomore, junior and senior years, and then the student would get a diploma. A student by the name of Draser, for example, attended the St. Louis College of Physicians and Surgeons for one semester, bringing with him credits for four years' work from the defunct Pacific Medical College. Draser obtained from Briggs "indefinite leave," then went home and did not return; a diploma was mailed to him in California, and it cost him between $500 and $600.

MONTANA

"Dermatologist" Arrested.—W. M. de Orgler, who claimed to be a dermatologist from Denver and to have a medical degree from Vienna, and a permit from the Montana Medical Board, is said to have gone to Billings recently to practice dermatology. He made arrangements with a local druggist and advertised in the newspaper. One of the first patients sent to de Orgler was from the assistant county attorney, whereupon he was arrested for practicing without a license and paid a fine of $50. De Orgler left for Worland, Wyo.

NEBRASKA

Hospital News.—The Pioneer Memorial Hospital, Dalton, which is in charge of Drs. Axel E. Hedlund and Guy F. Zarbaugh, was opened to receive patients, October 15.

NEW HAMPSHIRE

Society News.—Dr. James B. Woodman, Franklin, was elected president of the New Hampshire Surgical Club at the annual meeting at Portsmouth; Dr. Eugene B. Eastman, Portsmouth, vice president, and Dr. John F. Holmes, Manchester, secretary-treasurer. Dr. Eastman was toastmaster at the annual banquet. The clinical meeting next spring will be at Nashua.

NEW JERSEY

Personal.—Dr. Henry Wallace, Glen Ridge, director of the cardiac department, Mountainside Hospital, Montclair, has resigned and moved to New York City.

Hospital News.—The new nurses' home of the Nathan and Miriam Barnert Memorial Hospital, Paterson, the gift of Nathan Barnert, was dedicated, October 8.

Typhoid Bacilli in Potato Salad.—An investigation of a recent outbreak of typhoid in Barnsboro following a supper given by the local fire company in September disclosed, it is reported, that the outbreak was due to the eating of potato salad which had been prepared by a typhoid carrier. Three persons died as a result of the outbreak.

NEW YORK

Hospital News.—The board of governors of the New Rochelle Hospital, White Plains, announce a drive for $1,000,000, beginning November 21, for the expansion of the hospital.

Personal.—Dr. Carl Boettiger, Forest Hills, was elected vice president of the Queensborough Tuberculosis Association at the sixth annual meeting, October 28.——Dr. Donald C. Smelzer, assistant to the superintendent of the Buffalo General Hospital, Buffalo, has resigned to become superintendent of the Charles T. Miller Hospital, St. Paul, to succeed Dr. Karl H. Van Norman.

Site for Veterans' Hospital.—The U. S. Veterans' Bureau purchased, November 2, the 550 acre Holmes estate near Northport, L. I., as a site for a 1,000-bed hospital for mentally infirm veterans. Nearby are the Central Islip and Kings Park hospitals, also for mental patients; *New York Medical Week* says that the state of New York is building an additional $3,000,000 group of buildings on the Kings Park grounds for veterans from the state who are mentally ill.

New York City

Personal.—Holmes C. Jackson, Ph.D., professor of physiology, University and Bellevue Medical College, has been appointed dean of the New York College of Dentistry.

Hospital News.—The cornerstone of the extension to the Staten Island Hospital, New Brighton, S. I., was laid, October 17, by Edward C. Bridgeman, president of the Staten Island Savings Bank, who has been a trustee of the hospital for more than fifty years.——The annual benefit performance for the Hospital for Ruptured and Crippled will be "The Vagabond King" at the Casino Theatre, November 16.——The cornerstone of the new Caledonian Hospital, Brooklyn, was laid, November 8, and a campaign to raise $200,000 to complete the structure was begun the following day.

Society News.—At a recent meeting of the Manhattan Dermatological Society, Dr. Benjamin F. Ochs, the sole surviving charter member, and Dr. Ludwig Weiss, were made honorary presidents; Dr. George C. Andrews, Jr., chairman; Dr. Joseph J. Eller, vice chairman, and Dr. David L. Satenstein, secretary-treasurer.——Dr. William E. Preble, Boston, will address the Clinical Society of the Hospital for Joint Diseases, November 24, on the medical aspects of "Chronic Arthritis," and Dr. William Russell MacAusland, Boston, on the surgical aspects of that subject, with moving pictures of arthroplasty. Physicians are invited.

Lectures on Mental Hygiene.—The following series of lectures on mental hygiene will be given at the New York Academy of Medicine, beginning November 10:

Edwin Grant Conklin, Ph.D., professor of biology, Princeton University, "Development in the Light of Eugenics and Heredity."

Dr. Thomas W. Salmon, professor of psychiatry, Columbia University College of Physicians and Surgeons, "Some of the Emancipation Problems of the Adolescent."

Dr. C. Macfie Campbell, professor of psychiatry, Harvard Medical School, "New Concepts of Mental Ill Health."

Dr. Adolf Meyer, professor of psychiatry, Johns Hopkins University, Medical Department, "Individualism and Mental Health."

Dr. William A. White, medical director, St. Elizabeth's Hospital, Washington, D. C., "Psychological Methods of Cure, Psychanalysis and Suggestion."

Dr. Ira S. Wile, New York, "The Mental Health of the School Age Child."

Dr. Augusta F. Bronner, "Juvenile Delinquency and Mental Hygiene."

Paul Klapper, Ph.D., dean, School of Education, College of the City of New York, "Mental Tests—Their Uses and Interpretation."

Dr. Abraham Myerson, professor of neurology and neuropathology, Tufts College Medical School, "Inheritance of Mental Diseases."

Dr. R. Foster Kennedy, professor of clinical medicine, Department of neurology, Cornell University Medical College, "The Relation of Nervous Disorders to Functional Disease."

Dr. Patty Hill, professor of education, Teachers' College, Columbia University, "Nursery Hygiene and the Nursery School."

Dr. Douglas A. Thom, instructor in psychiatry, Harvard Medical School, Boston.

OHIO

Physician Sentenced.—Dr. Frank J. Sofge, Cincinnati, was sentenced to three years in the federal penitentiary at Atlanta, October 19, by U. S. District Judge Hough, following his plea of guilty to violation of the Harrison Narcotic Law, it is reported.

Hospital News.—The Deaconess Hospital, Cincinnati, is conducting a drive for $500,000 for new construction.——The citizens of Fostoria will soon vote on a $50,000 bond issue, the proceeds of which will be used to convert the Emerine property into a hospital.——Alterations are being made on the McKinley Hospital, Columbus; it will be operated as an open hospital by a group of general practitioners. The head of the new organization is Dr. William H. Cleveland.

Cincinnati Dermatologists Organize.—The Cincinnati Dermatological Society was recently organized with Dr. Augustus Ravogli, president; Dr. Elmore B. Tauber, vice president, and Dr. H. Jerry Lavender, 715 Provident Bank Building, secretary-treasurer. Meetings will be the first Wednesday evening of each month except in summer, and visitors will be welcome. The secretary requests that dermatologists from other cities inform him at any time of their intended visits in or near Cincinnati.

Society News.—Dr. Charles A. Langdale has been elected president for the ensuing year of the Cincinnati Academy of Medicine, Dr. Victor Ray, president-elect; Dr. Alexander G. Drury, treasurer, and Dr. Elmer A. Klein, secretary——Dr. George W. Crile, Cleveland, addressed the Columbus Academy of Medicine, September 28, on "Problems Relating to the Liver and Biliary Tract," illustrated by lantern slides.——Dr. John A. Riebel gave a surgical demonstration before the General Practitioners Medical Society at the new McKinley Hospital, Columbus, October 29, of the new Gerad-Bassini herniotomy; Dr. Benjamin W. Abrahamson presented a case of epidemic encephalitis.——T. Wingate Todd, Henry Willson Payne professor of anatomy, Western Reserve University School of Medicine, Cleveland, addressed the November meeting of the Academy of Medicine of Toledo and Lucas County on "Royal Mummies."——Dr. Clarence D. Selby, president, Ohio State Medical Association, addressed the Harrisburg (Pa.) Academy of Medicine, October 6, and the Academy of Medicine of Toledo and Lucas County, October 21.

Personal.—Dr. Tedrow S. Keyser, Springfield, has been appointed head of the medical staff of the Clark County Tuberculosis Sanatorium, to succeed Dr. Clarence E. M. Finney, resigned. Dr. Keyser will take up his duties about December 1; he is a graduate of Johns Hopkins University Medical Department, Baltimore, and served in Germany and Roumania during the World War as a tuberculosis examiner.——Dr. Charles W. Conley has resigned as a member of the medical staff of the Ohio Industrial Commission and will be succeeded by Dr. Austin H. Seeds, Columbus; Dr. David P. Young, Dayton, has been added to the medical staff of the commission.——Dr. William H. Banner, Tiffin, has been appointed jail physician to succeed the late Dr. Charles W. B. Harbour.——Dr. Samuel P. Carter, West Manchester, has been appointed assistant surgeon for the American Rolling Mills, Middletown.——Dr. Henry T. Sutton, Zanesville, has been reelected president of the staff of the Good Samaritan Hospital.——Dr. Harold S. Cohn has resigned as medical examiner of the U. S. Veterans' Bureau at Cleveland.——Dr. Maurice I. Miller, Troy, has been appointed county physician to succeed the late Dr. Charles A. Hartley.

PENNSYLVANIA

Personal.—According to the Pittsburgh *Post*, Dr. John R. Conover was elected secretary of the newly organized Allegany County Health Association, October 30. Board of health officials from all parts of the county outside Pittsburgh were present and among the speakers were Dr. Charles H. Miner, state health officer, Dr. Samuel R. Haythorn of the University of Pittsburgh and Dr. Carey J. Vaux, health officer of Pittsburgh.

Physical Examinations for State Employees.—Governor Pinchot recently announced that the state department of health is prepared to make physical examinations of all employees of the executive departments. The examination of employees is voluntary except when they are absent from duty on sick leave for five consecutive days in a month, or for eight days in two consecutive months, or for employees who are believed by the health department to be a menace to the health of others and except all new employees.

Philadelphia

Personal.—George H. Meeker, Ph.D., dean of the Graduate School of Medicine of the University of Pennsylvania received the degree of doctor of laws from LaFayette College at the Founder's Day exercises, October 21.——Dr. Solomon Solis-Cohen, for many years professor of clinical medicine, Jefferson Medical College, was elected to membership on the board of education at the meeting of the board of judges, November 6.

Welfare Drive Continued.—To allow the 4,000 workers to reach persons whose names they have but whom they have been unable to canvas, the Welfare Federation Campaign for $3,157,000 will be continued for a week longer. The tabulating of final reports of the drive, which was to have ended at the close of the eight-day period, showed that the total subscribed was $2,527,944, or more than $600,000 less than the goal.

Society News.—Dr. Theodore H. Weisenburg has arranged a symposium on "Nervous Diseases," which will be presented at the next scientific meeting of the Philadelphia County Medical Society, November 26, at the College of Physicians.——The Board of Directors of the Philadelphia County Medical Society, Room 1208 Central Medical Building, desire information concerning certain founders of the society, and if possible photographs for historical classification. However slight, any information will be welcome concerning Drs. William Curran, William H. Tingley, Robert Foster, Thomas Hobson, James McCulloh, Frederich A. Martin, John M. Pugh, Neville C. Reid; ex-presidents, Drs. Benjamin Horner Coates-1859, George Hamilton-1868, and Francis M. Perkins-1903.

RHODE ISLAND

Smallpox at Woonsocket.—It is reported that the outbreak of smallpox at St. Francis Orphanage, Woonsocket, had affected eighteen children, October 31, and that there were fourteen cases in the orphanage when the outbreak was discovered; only two cases were severe, and these patients are convalescent.

Society News.—Dr. Jeffrey J. Walsh has been elected president of the Rhode Island Ophthalmological and Otological Society; Dr. John J. Gilbert, vice president, and Dr. Francis B. Sargent, secretary-treasurer. The society voted at this meeting to subscribe to the eye, ear, nose and throat journals for the medical library and to make the usual contribution in funds to the Rhode Island Medical Library Fund.

State Society Sponsors Radio Talks.—Through its committee on education, the Rhode Island Medical Society is sponsoring a series of health talks over the radio from Station WJAR, on Friday evenings at 8:50. The series began, October 16, and November 13 will be "Prenatal Care," Dr. Herbert G. Partridge; November 20, "The Baby: Its Proper Food," Dr. Henry E. Utter; November 27, "The Preschool Child," Dr. Harold G. Calder; December 4, "The School Child," Dr. Ellen A. Stone; December 11, "Tuberculosis in Childhood," Dr. John I. Pinckney; December 18, "Tuberculosis in Adults," Dr. Harry L. Barnes.

SOUTH CAROLINA

Personal. — Dr. Louis L. Williams has been appointed county health officer at Georgetown.——Dr. James B. Beeler, *Columbia, a member of the staff of the State Hospital*, has been elected superintendent of the Spartanburg General Hospital.

Society News.—The Greenville County Medical Society held a meeting, October 5, in honor of Dr. Robert S. Cathcart, Charleston, president of the South Carolina Medical Association. Dr. Cathcart spoke on "The Progress of Surgery" and on the work of the state medical association.

WASHINGTON

Increase in Death Rate.—The Department of Commerce announces that the 1924 death rate for Washington was 1,001 per hundred thousand of population, as compared with 966 in 1923. The increase is largely accounted for by increases in death rates from diseases of the heart, measles, nephritis and diphtheria.

Society News.—Dr. James Tate Mason addressed the King County Medical Society, Seattle, November 2, on "Some of the Pertinent Problems of Goiter," and Dr. William M. O'Shea, on "Vomiting [illegible]" Dr. William H. Axtell, Bellingham, add[illegible] County Medical Society, October 5, on "[illegible]" and Dr. Lyle A. Greenwood, Bellingham, on "Observations on Blood Sugar."

WISCONSIN

Society News.—The Marathon County Medical Society, Wausau, gave a dinner in honor of Dr. Joseph F. Smith at the Wausau Club, October 21. Dr. Smith was recently elected president of the Wisconsin State Medical Society.

Personal.—Dr. Adolf Gundersen, La Crosse, a regent of the University of Wisconsin, has been awarded the Knighthood of St. Olaf by the king of Norway.——Dr. Mynie G. Peterman, associate in pediatrics, Mayo Clinic, Rochester, Minn., has accepted the position of director of laboratory and research at the Children's Hospital, Milwaukee.——Drs. E. Evans, LaCrosse; John W. Coon, Stevens Point; Charles D. Boyd, Kaukauna, and Gustave Windesheim, Kenosha, were reelected directors of the Wisconsin Anti-Tuberculosis Association at the eighteenth annual meeting, Milwaukee, October 30, and Dr. Michael R. Wilkinson, Oconomowoc, was elected as a new director.——Dr. Lawrence F. Dugan has resigned as house physician of the Emergency Hospital, Milwaukee, and has been succeeded by Dr. Harry T. King.

GENERAL

Prize for Health Work in Schools.—The American Child Health Association announced, October 11, that the $1,000 prize offered in its study of health programs in secondary schools of this country had been divided between the Jacksonville Consolidated School, Jacksonville, Ark.; the New Trier Township High School, Kenilworth, Ill., and the DeWitt Clinton High School, New York. More than fifty schools took part in the contest.

Section Meetings Discontinued.—The American Roentgen Ray Society, at the recent annual meeting in Washington, D. C., decided to discontinue sectional meetings. It has been evident for several years, the journal of the society says, that meetings devoted to roentgenology and radium therapy had become so frequent as to impose a burden on those required to attend them. The Radiological Society of North America previously had discontinued its summer meetings. The editor says that the number of meetings could be still further reduced without interfering with the progress of roentgenology and radium therapy.

Accidents at Coal Mines in September.—There was a loss of 142 lives in accidents at coal mines in the United States, in September, which, according to the Department of Commerce, were all at bituminous mines, work at the anthracite mines being suspended during the month. There were no major disasters reported. The fatalities represented a death date of 3.03 per million tons of coal mined, as compared with 3.76 for the corresponding period last year. The deaths of 1,612 men killed by accidents at coal mines in the United States have been reported to the Bureau of Mines in the first nine months of this year, representing a reduction in the death rate per million tons mined of 16 per cent.

Campaign for The Physicians' Home.—The campaign for an endowment fund for a national home for aged and needy physicians will be inaugurated, November 23, at a banquet at the Waldorf-Astoria, New York. Among those who have been invited to speak are Hon. Chauncey M. Depew, Hon. Elihu Root, Dr. Hubert Work, Secretary of the Interior, Cardinal Hayes, Hon. Samuel Untermyer, Dr. Charles H. Mayo, Dr. Alexander Lambert and Rev. S. Parkes Cadman. Persons desiring to attend the banquet should notify the secretary, Silas F. Hallock, The Physicians' Home, Inc., Twenty-Second Floor, *Times* Building, Broadway and Forty-Second Street, New York, promptly.

Accidents at Quarries.—According to the Bureau of Mines of the Department of Commerce, there were 138 deaths at quarries in the United States during 1924 and 14,777 injuries, as compared with 142 deaths in this industry and 14,990 injuries in 1923. The 1924 fatality rate is the lowest since the Bureau of Mines in 1911 began compiling data for quarries. The industry employed 94,242 men during the year. The employees averaged 269 workdays per man. Accidents inside the quarries killed ninety-six men and injured 8,990, while accidents outside the quarries, at crushers, mills, and rock-dressing plants, killed forty-two and injured 5,787. The principal causes of fatal accidents inside the quarries were falls or slides of rock, explosives, falls of persons, machinery and haulage, while the principal causes of fatalities outside were machinery, haulage, falling objects, falls and burns.

Postgraduate Classes in Stomatology.—The following courses, given under the auspices of the American Stomatological Association, are open to duly licensed physicians and dentists; stomatologic bacteriology, under the supervision of Drs. William H. Park and Charles Krumwiede; diagnosis and focal infection, Drs. George Reese Satterlee, Homer E. Smith, George A. Wyeth and others; stomatologic hygiene, Alfred J. Asgis, D.D.S., and E. B. Hardisty; dietetics in stomatologic practice, Holmes C. Jackson, Ph.D.; clinical dietetics, Dr. Robert H. Rose. Clinical and laboratory courses will be given at Fordham Hospital, University and Bellevue Medical College, Medical Laboratories, Midtown Hospital and other institutions. Information may be obtained from the Director of Classes, Aeolian Hall, 33 West Forty-Second Street, New York.

Women's Clubs Plan Health Surveys.—The department of public welfare of the General Federation of Women's Clubs [illegible] a plan of health surveys in communities [illegible] States. The assistance of other organizations will be enlisted and the data collected submitted to official agencies before publication. A prize will be offered the state showing the greatest interest in this program, and the Metropolitan Life Insurance Company, New York, will supply clubs with an outline by which such a survey may be conducted and furnish statistics whereby results may be compared with work done in other communities and, when the survey is completed and approved by local health officials, will print the report for distribution in the community concerned. All names of women's clubs completing the work should be in the hands of the General Federation chairman by April 1, 1926, if a state desires to compete for the national prize.

Automobile Fatalities.—There were 3,973 automobile fatalities reported to the Department of Commerce from January 1 to October 10 from fifty-nine cities in the United States having an aggregate population of 28,000,000. Reports from thirty-seven cities having a population of 100,000 or more show more automobile fatalities in the four weeks ending October 10 than in the previous four weeks, and that there were no automobile fatalities in the latter period in Grand Rapids, Mich., Kansas City, Kan.; Washington, D. C., and Wilmington, Del. New Bedford, with nine deaths, has the lowest rate (8.4) per hundred thousand of population. Among sixty-five cities in which comparisons are possible for 1924 and 1925, only sixteen reported more automobile fatalities in the period from Jan. 1 to Oct. 10, 1925, than in the first ten months of 1924. New York so far this year has reported 730 automobile fatalities; Chicago, 453; Philadelphia, 226; Detroit, 200; Cleveland and Los Angeles, each 173.

Sanitation in Jails.—A report submitted to the American Prison Association by its committee on jails, of which Dr. Hastings H. Hart, consultant at the Russell Sage Foundation, New York, is chairman, covers a study of 893 city and county jails throughout the country in which federal prisoners are kept. The committee found that many of these jails are overcrowded and insanitary and infested with vermin. It was not unusual at the Cook County Jail in Chicago, for example, to keep five prisoners in a cell intended for one, and similar conditions have existed in Detroit, Cleveland, New York and other cities. The report shows that the United States government is "boarding out" more than 7,000 prisoners to local jails over which the government has no control and many of which are "desperately overcrowded." A large part of these federal prisoners are simply awaiting trial, and a considerable number of them are subsequently legally proved innocent. Since the government has no jails of its own, the committee says, it inflicts a great injustice on the taxpayers in the counties where the prisoners are confined. The government boards its prisoners in various county jails at an average cost of 69 cents a day, and the fees received for federal prisoners go to the sheriff or jailer or to the county, depending on the laws in the state; in some places the income of the local jailer depends on what he can save from the food allowance of the prisoners. The committee says that the present system of boarding out prisoners in county jails is hopelessly unsatisfactory to all concerned, except to a limited number of county sheriffs and jailers.

LATIN AMERICA

Medical Practice in Honduras.—The Facultad de Medicina at Tegucigalpa frames the laws pertaining to the medical profession and examines foreign physicians who desire to practice in Honduras. The right to practice in that country may be obtained by completing a six year course in the department of medicine of the University of Honduras, the only medical school, but physicians from other countries may register their diplomas with the Facultad de Medicina and thereby obtain the right to practice. If a physician from another country has no diploma from a recognized school, he must take an oral and a written examination; this applies to dentists and pharmacists also. Certain formalities should be observed in order to avoid loss of time; for example, the signatures on one's diploma should be authenticated by the secretary of state of the state in which the school is located; the signature of the secretary of state should be authenticated by the Secretary of State of the United States, and his signature in turn authenticated by a Honduras consul in the United States. The diploma then, with the attached documents, is forwarded to Tegucigalpa to the minister of foreign relations, who transmits it to the minister of public instruction for the necessary registration. For those who take the examination in Honduras in order to practice and who do not speak Spanish, the Facultad de Medicina appoints a translator.

FOREIGN

Trachoma Epidemic in Germany.—The public schools in various sections of the Palatinate (a part of Bavaria) have been closed on account of an epidemic of trachoma, according to the New York *Times;* eighty-five school children have been placed in hospitals in the Hassloch district.

Medical Officer for London County.—Dr. F. N. Kay Menzies, director of the hospital and medical services department at the Red Cross of London, will succeed Sir William Hamer as chief medical officer for the County of London, Jan. 1, 1926, when Dr. Hamer will retire, after having served the council for nearly thirty-four years.

Vacant Professorships in Medicine in Ireland.—Dr. John Mallet Purser has resigned the chair of Regius professor of physic in Dublin University, and the vacancy will be filled in December. According to the *Lancet,* Dr. Purser has recently been in ill health. Dr. Joseph O'Carroll has resigned the chair of medicine in University College, Dublin, National University of Ireland, to which he was appointed in 1912.

Warning Against Studying Medicine.—The Prussian state authorities have issued a public warning against taking up the study of medicine in the next few years. Among the reasons given are that the outlook for physicians is the worst conceivable while the training in medicine is the most expensive of all the academic professions. The *Klinische Wochenschrift* adds that the warning was issued at the initiative of the officers of the organized medical syndicates, the Aerztekammern.

Annual Dinner at "Old Barts."—The annual old students' dinner of St. Bartholomew's Hospital, London, was held again this year in the Great Hall of the hospital, and the chairman was Mr. John Adams, F.R.C.S. Among many others present were Sir John Bland-Sutton, Sir Archibald Garrod, Lieut. Gen. Sir William B. Leishman, Surg. Vice-Admiral Joseph Chambers and Dr. W. Langdon Brown. Plans have been drawn up for the rebuilding of the hospital, which provide for more than 700 beds on the present site and for a paying patients' block with about eighty beds. The historic Great Hall (this hospital is more than 800 years old) will be left undisturbed.

American University of Beirut.—The dean of the Medical Department of the American University of Beirut, Syria, writes that the freshman class this year comprises twenty-five students and that there have been new appointments to the faculty of Dr. Stanley E. Harris as adjunct professor of internal medicine and therapeutics. Dr. Harris graduated from the University of Pennsylvania in 1923. Dr. Lepine, son of the dean of the Medical Faculty of the University of Lyons, France, has been appointed professor of pathology. A former student of Johns Hopkins Medical School, Mr. William Shanklin, is teaching histology, and Stanley E. Kerr, who has done special work at the University of Pennsylvania, is expected to take charge of the new laboratory in biochemistry. This school has its first fifth year class this year of nine men. The dean says that many of the other graduates are taking their year of internship in general hospitals in Palestine, Egypt or the Sudan or at the University of Montpellier in France. A large tract of land in the rear of the University Hospital has been added to the campus for purposes of expansion.

Deaths in Other Countries

James Niven, formerly medical officer of health for Manchester, England, September 30, aged 74.——Dr. **James W. Russell**, professor of medicine, University of Birmingham, September 20, in Devonshire, aged 62.——Dr. **Charles Frederick Sonntag**, anatomist to the Zoological Society of London and author of many papers on comparative anatomy; October 10, aged 38.——Dr. **R. C. Chicken**, consulting surgeon to the Nottingham General Hospital and formerly president of the Nottingham Medico-Chirurgical Society; October 3, aged 75.——Dr. **A. M. Arquellada**, Madrid, president of the Madrid Pediatric Society and surgeon in chief of the Niño Jésus children's hospital.——Dr. **G. Dorner**, professor of internal medicine at Leipzig, committed suicide October 5 in a recurring attack of depression.——Dr. **L. Bardach**, director of the German sanatorium at Nice for twenty-five years.——Dr. **A. Massone**, chief of the hygiene department of the Italian public health service.——Dr. **G. Perna**, professor of anatomy at Bologna and author of numerous works on anatomy.——Dr. **O. van der Stricht**, a Belgian biologist who lectured at various universities in this country during the World War, and whose last important work, on ovogenesis in mammals, was recently published with financial aid from America.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 23, 1925.

The Earliest London Woman

At a meeting of the Zoological Society, Mr. Warren R. Dawson and Prof. Elliot Smith exhibited what appear to be the earliest fossilized human remains discovered in London. They consist of the posterior two thirds of the cranium of a woman, estimated to be about 45 years of age from the condition of the sutures. The bony matter was so mineralized that there could be no question of its being the familiar case of a modern skull getting into a pit. The skull was found during recent excavations in connection with building operations in the city, 26 feet below the level of the street. The deposit there is Pleistocene river gravel. Remains of the mammoth had been obtained previously in the same area, both above and below the level at which the skull was found and at a deeper level of the deposit, part of the skull of a woolly rhinoceros had been found. The bed of river gravel is part of the third or lowest level of the Thames Valley, laid down when the river was much wider and deeper than now. From the anthropologic point of view, the horizon is associated with the upper paleolithic ages of human development. The discovery confirms the view that before the age of neolithic culture began in the south of England, there was an indigenous population, living for the most part in caves, ignorant of pottery or of metals, but making accomplished implements of stone, showing a strong artistic sense and living as nomad hunters. These Paleolithic races have belonged definitely to *Homo sapiens,* the species of modern man. Distinct from them and of unknown origin is the low-browed Neanderthal species, remains of which have been discovered in many parts of the world. In the opinion of Professor Smith, the skull in the present case was much flattened and similar to the Neanderthal type.

The Defense of the "Unconscious Mind" Fails in a Murder Case

At the central criminal court, a lad, aged 19 years, was tried for the murder of his aunt by marriage. The crime had very unusual features, for he was the woman's paramour and she had asked him to kill her. In cross-examination the police surgeon, called by the prosecution, admitted that for a humane boy to strangle the woman he loved in the circumstances disclosed showed an abnormal state of mind. He was asked, "If some one had reiterated commands given to him, such as 'Kill me,' might not he, in his state of mind, have done things without appreciating what he was doing?" He replied, "I suppose so." "Suppose a boy very emotionally moved and in a curious condition altogether suddenly loses control of himself, his subconscious mind might take charge of him and make him do something without his appreciating what he was doing?" The police surgeon again replied, "I suppose so." The judge then intervened by saying, "I don't quite understand this. Is the theory that the prisoner's condition of mind was such that his conscious mind ceased to function and he strangled the woman through the action of his subconscious mind?" The lawyer for the defense answered, "Yes." But the police surgeon said, "I do not think the conscious mind was lost in this case. We know the subconscious mind plays an important part, but I cannot say it takes up the work if the conscious mind is absent." Dr. Bronte, the government pathologist, was also cross-examined. He admitted that "calf love" might take a strong hold on a person, and that difficulties might increase that hold. He was asked, "Any one in that condition might be prone to suggestions by a person more mature than himself?" He answered, "Yes." Evidence was given for the defense that the prisoner was of a peculiarly gentle character, and that there had been insanity in the family. The defense was that under the circumstances his mind gave way and the woman's reiterated command, "Kill me! Kill me!" took possession of his subconscious mind and urged him to the act. In summing up, the judge asked the jury to consider whether at the time the prisoner committed the act he had any disease of the mind. If he did not appreciate the nature and quality of his act, or if he knew what he was doing, but he did not know that it was wrong, they could find him guilty but insane. This, of course, is the celebrated McNaghten rule, which recent medical opinion and still more recent legal opinion have declared to be inadequate. The jury found the prisoner guilty but recommended him to mercy.

Hospitals and Road Accidents

The enormous increase of road accidents due to the development of motor traffic has been pointed out from time to time in The Journal. The number of such accidents treated in the hospitals has now become a serious burden. In its last annual report, the British Hospitals Association stated that the number of such accidents treated was much more than formerly, and that there was no legal or other machinery in compensation cases to enable hospitals to reap any financial benefit for services rendered to the injured. Mr. E. W. Morris, house governor of the London Hospital, said that the number of motor accidents constituted a serious problem in that institution. The best treatment was provided, the expense of which was considerable, and the hospital could not legally claim anything for the service rendered to the injured person who was entitled to compensation. "There are insurance companies among our subscribers," he added, "and motorists and others injured have made contributions. But the amount is infinitesimal compared with the expense to the hospital. We do think that the services rendered by the hospital should be considered in compensation cases claims."

The Racial Problem in South Africa

Is white civilization doomed to extinction in South Africa? This question was raised by Dr. J. A. Mitchell, chief health officer of the Union of South Africa, at the Imperial Social Hygiene Congress at Wembley. The fertility of the black race was so enormous, he said, and their adaptation to the climate was such that it had been estimated that within fifty years they would exceed the white out of all proportion. There was an extraordinary tendency to exaggerate the prevalence of diseases among the natives. Statements were made that 50 per cent. and more were infected with venereal disease, but the total for all races was under 2 per cent. Under European rule, intertribal wars had been stopped; law and order were enforced; famine was prevented or checked, and, apart from the world-wide spread of influenza in 1918, there had been no serious epidemic in South Africa during the last forty years. The real racial danger was not that the native population would be reduced or destroyed, but that the Europeans may be elbowed out or swamped and absorbed by natives.

Workshops for the Tuberculous

Health officers from various parts of London attended a meeting at the Holborn town hall in support of the provision of workshops for tuberculous men and women. The borough of Holborn boasts the first workshop of this kind in the country, and the purpose of the gathering was to urge the necessity of establishing similar institutions. The Spero Leather Factory was established in 1922 by the Central Fund for the Industrial Welfare of Tuberculous Persons and is at present subsidized by voluntary subscriptions. The idea is that patients leaving sanatoriums are often able to undertake some work, though not sufficient to yield a living wage. Colonies have been formed for their assistance in the past; but by means of the workshops, such as that in Holborn, the men can remain at home with their families. Wages at Holborn factory vary from $8 to $11 a week. Medical opinions expressed at the meeting were strongly in favor of such workshops.

The Cost of Malaria

Dr. Andrew Balfour, director of the London School of Hygiene and Tropical Medicine, estimates the direct annual cost of sickness and death attributable to malaria in the empire at between $250,000,000 and $300,000,000. A further vast loss is the diminished industrial efficiency due to the disease. The annual world death roll he estimates at 2,000,000.

The Prevention of Scarlet Fever and Diphtheria

In his presidential address to the Society of Medical Officers of Health, Dr. G. F. Buchan, health officer for Willesden, said that since 1875 the death rate of England and Wales had fallen by 46 per cent., and the infant mortality by 53 per cent., while the expectation of life at birth was greater by twelve years. Judged by these figures the health officer had well fulfilled his function, but there are some aspects of public health which did not throw so favorable a light on his work, particularly the continued prevalence of diphtheria and scarlet fever. In 1874 the death rate from diphtheria was 15 per hundred thousand persons and from scarlet fever, 105. Last year the figures were, respectively, 6.4 and 2.3. The total number of deaths from these diseases in 1874 was 3,560 and 24,922, respectivity; in 1924, 2,501 and 888. While the deaths and death rates from diphtheria had not materially changed during the period from 1874 to 1924, the deaths and the death rate from scarlet fever had greatly and progressively diminished. His own experience led him to the conclusion that hospital isolation was not effective as a means of prevention of diphtheria and scarlet fever; that the methods of disinfection in general use were without influence in prevention of the spread of these diseases, and that isolation hospitals; by increasing the length of infectiousness, defeated to some extent the object of prevention for which they were established. Hospital provision for the treatment of diphtheria and scarlet fever cost $15,000,000 per annum, exclusive of the cost of disinfection and other means of prevention. The bulk of this could be saved by the application of the newer methods of prevention revealed by recent research. These included the Schick test, the Dick test and immunization.

The London School of Hygiene and Tropical Medicine

The site for the new building of the London School of Hygiene and Tropical Medicine is near the British Museum. It is not expected that it will be ready for occupation before 1928. One source of anxiety has been removed. The trustees of the Rockefeller Foundation originally promised to provide a sum of $2,000,000, in 1922. This meant a considerably larger sum in sterling at the time than it does now, because of the depreciation of the British currency practically to par. Representatives of the board of management to the Rockefeller trustees have caused the latter to cancel this loss and have undertaken to provide a sum equal in British money to that which their grant would have yielded at the time it was made. The number of students in the tropical division of the school constitutes a record; for the year 1924-1925, it amounts to 227. The widespread benefit of the school is shown by the countries to which its students have gone. These include West Africa, East Africa, South Africa, Egypt, Mauritius, India, Ceylon, China, Hongkong, Federated Malay States, Straits Settlements, Siam, Palestine, the United States, South America, Trinidad, Australia, the Gilbert and Ellice Islands, France, Italy, Denmark and Serbia. With regard to research work, the most important development is the arrangement made between the authorities of the school and the government of Southern Rhodesia for the prosecution of medical research in that colony. Dr. G. R. Ross left England in March to conduct research on blackwater fever in the laboratory at Salisbury and in the field.

PARIS

(From Our Regular Correspondent)

Oct. 19, 1925.

Leukemia Following the Use of Radioactive Substances

Articles by Jagić Schwartz and Siebenbrock (1911), Aubertin (1902) and Mostram (1920), show that radiations of short wave length may cause destructive lesions of the blood-forming organs. A number of cases of grave anemia and pernicious anemia have occurred in persons who handle radium and thorium. The therapeutic use of these substances or of too strong or too often repeated doses of roentgen rays has sometimes produced similar conditions. Experimentally, too, acute anemic and hemorrhagic states have been induced in animals. Weil observed recently two civil engineers who had been working in the same laboratory preparing radioactive substances of the thorium group, one of whom succumbed to pernicious anemia and the other to myeloid leukemia. Weil has an interesting article in the *Presse médicale* on leukemia following the use of radioactive substances. Besides his own case, which he reports in detail, he cites from the literature seven other cases of leukemia that developed under similar conditions. Of these seven cases, five occurred in roentgenologists, one in a person who handled radium habitually, and one in a patient who had received roentgenologic treatment. Only two of the cases were published with the details. On the basis of these eight observations, leukemia following the use of radioactive substances seems to be established. This type of leukemia seems to be caused more particularly by roentgen rays, for most of the patients were roentgenologists; but radium and thorium may likewise be incriminated. In all cases the effects were produced through small doses frequently repeated over a long period.

The only case of therapeutic origin was in a patient with uterine fibroma, who was subjected to a single massive application of penetrating rays. Because four years intervened before the appearance of leukemia there is some doubt of a causal relation of the one to the other. If, however, a single massive dose of roentgen rays is capable of producing leukemia after so long an interval, other cases will be reported before long. Application of penetrating rays, now abandoned, was in vogue a few years ago and possibly their untoward effects will be revealed in further cases. The type of leukemia caused by roentgenologic irradiation is not peculiar in any way. It may be either of the lymphatic or the myeloid type.

Leukemia is often very favorably influenced (at least, at the start) by roentgenotherapy, and in that respect it resembles epithelial cancers of roentgenologists, which, although caused by roentgen rays, are nevertheless susceptible to treatment by roentgen rays or radium, in the usual doses.

Since the irradiations act both on the hematopoietic and on the reproductive organs, there is evidence in the patients of atrophy of the ovaries or testes.

The etiology of leukemia has been long in doubt. Some authors have regarded it as "cancer of the blood" or of the hematopoietic organs; others, as a special infectious disease, bringing it into relation with such infections as produce not only an irritation of the hematopoietic organs but also a marked leukocytosis of the myeloid (smallpox, spirillosis in fowls) or lymphatic (malaria, mumps) type.

The fact that irradiations may produce both epithelioma and leukemia in man, together with the fact that irradiations act favorably on both, awakens the idea that the two affections are interrelated. Some progress might be regarded as accomplished if we could produce leukemia experimentally in animals just as skin epitheliomas have been produced by irradiations.

Hospital Intern, Victim of Accident

A number of years ago H. Vadon, a hospital intern in Paris, in puncturing a lymphorrhagic effusion in a patient operated on for cancer of the breast, accidentally pricked a finger of his left hand. At the site of the skin puncture there soon developed an ulcerous skin lesion, which proved rebellious to all forms of treatment and the true nature of which remained for a long time unrecognized. It was only after histologic examination of an engorged gland that the diagnosis of cancer could be made with certainty. The extension of the disease soon made necessary a disarticulation of the shoulder. This operation was courageously borne by the young man, aged 24, and the government has justly conferred on him the rank of knight of the legion of honor.

The Need of Early Diagnosis of Cancer

Cancer patients often do not seek the advice of a surgeon until the disease has spread to such an extent that a radical cure is difficult. The delays that arise before beginning radium therapy, roentgenotherapy or surgical treatment cause many deaths that might have been prevented. A few years ago, the Franco-American League for Combating Cancer endeavored to educate the public by distributing more than 100,000 copies of a small pamphlet entitled, "What You Should Know," which presented the cancer situation as follows: The number of cancers is increasing from year to year. Cancer affects all classes of society without distinction —women somewhat more frequently than men. In persons above the age of 40, it is one of the most frequent causes of death. It kills more than 40,000 persons in France, annually. Its incurability results most frequently from the ignorance of the public, which neglects cancer in its initial stages, since it is not painful during the first period of its development. If operated on early, it can be cured in a great number of cases, because at the start cancer is a local disease. The sick are urged, therefore, to suspect painless indurations of the breast, any abnormal oozing, persistent ulcerations of the tongue or lips, small cutaneous tumors that ulcerate or are increasing in size, persistent troubles of digestion (especially when accompanied by loss of weight), or the appearance of constipation when the stools have been previously normal. In all such circumstances, one should have oneself examined.

The Franco-American league has carried on the same campaign by posters, and its example has been followed by the Association française contre le cancer. The league has also organized lectures, which were attended with great interest. In this way a formal movement was launched. M. Strauss, who was then minister of public health, having presided at one of the general sessions of the league, was immediately won over for this campaign against cancer. Aided by the late Professor Bergonié, who was the most zealous worker in the campaign, he created in France a number of anticancer centers. M. Godart, who succeeded M. Strauss, has continued to give to the work the influence of his authority.

Professor Hartmann, the director of the Hôtel-Dieu in Paris, one of the most frequented anticancer centers, holds the view that, in order to make the crusade more effective, a special appeal should be made to physicians, for, without their cooperation in the movement, all efforts will be in vain. All physicians should familiarize themselves with the initial signs of various cancers, which are not fully explained in the textbooks. In order that physicians may have in a concise form, without burdensome details, descriptions of the beginning characteristic symptoms of cancer, Professor Hartmann, with the collaboration of well qualified colleagues, has edited a series of short articles dealing with the early diagnosis of the principal forms of cancer. These articles are to be published in the *Presse médicale,* and there is no doubt that they will render great service. The first article of the series is by Professor Forgue of Montpellier and deals with the diagnosis of cancer of the lip.

VIENNA

(From Our Regular Correspondent)

Oct. 12, 1925.

Diseases of Metabolism and of the Digestive Tract; the Vienna Convention

The fifth session of the Gesellschaft für Verdauungs- und Stoffwechselkrankheiten was held in Vienna, Sept. 30 to Oct. 5, 1925, under the chairmanship of Prof. Dr. Kuttner of Berlin. This society was founded only twelve years ago but has had a rapid growth. Whereas only 400 members took part in the Berlin session last year, more than 800 members from all parts of Europe were registered this year. At the opening meeting, Professor Wenckebach of Vienna was elected honorary chairman. Every day two papers were presented on some main topic, and, following these, there were shorter papers on the same subject. The opening papers were on "The Variations of Metabolism" and "The Skin in Relation to Metabolism." I can give here only the outlines of the most important papers. Professor Kestner of Hamburg discussed the physiologic bases of variations in metabolism. The correct technic for the determination of gas exchange is particularly important. The examination is made with the patient fasting and the muscles relaxed. Physiologic variations are caused by (1) endogenous factors (size, weight, sex and age) and (2) exogenous factors (temperature, skin irritations, mode of living and geographic location). As a rule, the basal metabolism is constant, but specific dynamic factors may cause a change: hunger, growth, pregnancy, convalescence. The anterior lobe of the pituitary body appears to exert an influence.

Professor Biedl of Prague discussed the variations of metabolism induced by the endocrine glands. Here two factors, both the "hormonal" and the "neural" factors must be reckoned with, but these are often merged. The hormones modify functions of certain organs, or directly affect metabolism. The most important organ, in this connection, is the thyroid. Biedl discussed also myxedema, exophthalmic goiter, and hypothyroidism and hyperthyroidism. In hypothyroidism, basal metabolism may drop to 50 per cent. of normal, or even less; the hair, nails and skin are "abnormal." The ingestion of thyroid substance raises the basal metabolism. Determination of the basal metabolism establishes the differential diagnosis between genuine exophthalmic goiter and forms of hyperthyroidism. It also serves as a guide to treatment, and may throw light on the indications for operation. The thyroid also influences muscular work. Thyroid substance has a direct effect on the body temperature. The parathyroid glands influence calcium metabolism; nothing is known as to the effects of the thymus, and very little about the effects of the gonads. The anterior lobe of the pituitary body affects growth; the middle lobe, metabolism, particularly the metabolism of fat. The "suprarenal system" has an effect on the metabolism of carbohydrates and fats. At the various periods of life, sometimes one system, and sometimes another, exerts the dominant influence, which would explain cyclic fluctuations in men, women and children.

Prof. Dr. Grafe of Rostock discussed metabolism in pathologic conditions. Researches of this nature should be undertaken only in a hospital and not in the patient's home, since no reliance can be placed on a single short observation. In warm-blooded animals, the intensity of metabolism depends on three factors: (1) the metabolism of the tissues themselves; (2) influence of the nerves, and (3) endosecretory processes. Food will increase the metabolism. Fever also will produce marked quantitative changes.

In his paper on "The Skin in Relation to Metabolism," Bloch of Zurich stated that heretofore the connection between these two factors had been known in only a small number of diseases. Sometimes a disease that originates in the skin affects the internal organs and sometimes the reverse is true, dermatoses resulting from disturbance of metabolism. The effects of dermatoses on the internal organs have not been sufficiently investigated. In allergic reactions, the skin appears to act as a protection through the vegetative nervous system or through "cutaneous hormones."

The topic of the second day was "The Genesis and Treatment of Constipation and Diarrhea." Professor Strassburger, internist, of Frankfort, stated that constipation might be of functional or of mechanical origin. Diarrhea—except in catarrh—he considers due to disturbance of motility and of the excretion of fluid by the intestinal wall.

Constipation from the surgical point of view was discussed by Professor Payr of Leipzig. The most frequent cause for surgical intervention was intestinal stenosis (neoplasm), but there were also mechanical causes, such as adhesions. In reflex spastic intestinal occlusion, operation should be postponed until after subsidence of the acute attack. Payr considered also the failures and the complications of such procedures. The roentgenologic aspects of the question were treated by Holzknecht of Vienna. In fluoroscopy one rarely sees movements of the whole intestine. Slight (also reversed) intestinal movements are more frequent. Long-continued constipation may be divided into the dyskinetic, the hypokinetic and the spastic forms. As a rule, one form merges into another, and is often dependent on the constitution and the bodily type of the patient. The roentgenologic aspects of diarrhea are as yet little known. Dr. Bergmann of Frankfort brought out that intestinal function is affected by mental and physical habits; it is a delicate reflex process, which is disturbed by the habits and customs of civilization.

Boas of Berlin presented a paper on chronic appendicitis. There is a form of chronic appendicitis without demonstrable preceding attacks; this form must be carefully distinguished from acute recurring forms. The chronic type has no special characteristics, except pains in the region of the cecum. It is liable to be confused with other conditions. Roentgenologic examination is valuable. Treatment is almost exclusively surgical, and a policy of waiting—especially in children—often leads to disaster. Professor Haberer of Graz approved in the main the statements of Boas, and emphasized that in many patients who were operated on and gave no history of symptoms there were signs of previous inflammation. Grave appendical changes—even empyema—may not be associated with fever.

The third day, papers on "Cirrhosis of the Liver" and on "Diseases of the Spleen and Liver" were read. Sternberg of Vienna discussed the pathologic anatomy of cirrhosis of the liver, and gave a demonstration with lantern slides and preparations. He considered the various forms of hepatitis and pointed out the difference between pigment cirrhosis, or pseudocirrhosis, of the liver and the genuine type. The etiology is still unknown.

The clinical paper on cirrhosis of the liver was presented by Eppingen of Vienna, on the basis of 372 cases, verified by 135 necropsies. Seventy-two per cent of the cases are in men. The disease occurs, for the most part, between the ages of 40 and 50; from six months to eight years elapse before it proves fatal. The history of the patient is important; syphilis, abuse of alcoholic beverages, icterus and dyspepsia are often mentioned. In 80 per cent. of the cases, enlargement and hardening of the liver occur; tumor of the spleen is found in 70 per cent.; icterus, in 50 per cent.; in the duodenal secretions, bile is always found; ascites occurs in 52 per cent. and distended veins in 27 per cent.; esophageal hemorrhages in 10 per cent.; low blood pressure in 76 per cent; pruritus in 18 per cent. (in combating which Eppinger has found calomel very efficacious). Fever occurs only in 33 per cent.; colic (also pseudogallstone colic) is frequent; pancreatitis is observed in 20 per cent.; absence of hair on the arms and legs is a peculiar symptom in 30 per cent. Leukopenia or leukocytosis has been noted in 56 per cent. Examination of the gastric juice, the stools, the urine (determination of urobilin) is important. Also roentgenograms furnish valuable evidence. Coma hepaticum occurs but rarely (in from 5 to 7 per cent.)—with bradycardia and high fever but no acetone. To combat this condition, Eppinger recommends an infusion of glucose. Of the cases examined, 24 per cent. were atrophic, 6 per cent. hypertrophic-cirrhotic, and 70 per cent. partly each. In the Läennec type, alcoholism was present in 61 per cent. of the cases; syphilis, in 8 per cent.; icterus, in 8 per cent., and infectious disease in 6 per cent. Eppinger considers cirrhosis from the standpoint of the double function of the liver, since it affects mesenchymal and epithelial tissues.

Hijmans van den Berg of Utrecht discussed "The Mutual Relations Between the Spleen and the Liver." Little is definitely known concerning the function of the spleen, and therefore little as to its relation to the functions of the liver. It is probable that the spleen prepares the red corpuscles (under normal conditions) for destruction in the reticulo-endothelial apparatus of the liver. But, since in the splenic artery just as much bilirubin is found as in the splenic vein, it appears that the spleen does not normally participate in the production of bilirubin. In pathologic conditions—poisoning, pernicious anemia and hemolytic icterus—the case is different. In animals from which the liver has been removed, bilirubin is found in the blood. Where there is extravasated blood, there is an extra amount of bilirubin formed. In a number of diseases, blood in large quantities flows through the splenic pulp, and the red blood cells are probably partially disintegrated there and thus prepared for the liver. As yet we do not know in which diseases removal of the spleen is advantageous, nor why it should be advantageous. We must rely on the observations of the surgeons for information in regard to the effects on other organs of spleen extirpation. Ranzi of Innsbruck pointed out the rapid compensation following spleen extirpation. Often no marked effects due to the loss of the spleen were noted. To be sure, changes in the blood picture are observed even twenty years later. The results of spleen extirpation are good in hemolytic icterus. In pernicious anemia the patient's condition may improve, but a cure is not effected. A large spleen gives a better prognosis. Ranzi employs blood transfusion before and after the operation, with good effect. The mortality is high in cirrhosis with splenomegaly and the operation is difficult, but the condition of the liver is here more important. Essential thrombopenia reacts very favorably, although leukemia is hard to influence, and in acute yellow atrophy of the liver operation has not effect. Ranzi reviewed the most common operative methods and their complications.

Discussion on the papers was limited to ten minutes. Dr. Snapper of Amsterdam discussed the metabolism of the kidney and its part in the acidosis of diabetes, in which the sound kidney destroys the beta-oxybutyric acid. Professor Singer of

Vienna pointed out the significance of poisonous substances developing in the intestine from putrefaction of proteins. To combat this condition, he recommended intestinal antisepsis, a diet rich in carbohydrates and poor in proteins, and free evacuation to prevent stagnation in the rectum. For conditions involving liver injury he prescribes magnesium sulphate and hexamethylenamin. Raab of Prague studied in dogs the hormonal and nervous regulation of metabolism and found that the pituitary body plays a leading part in metabolism; its function is closely associated with the function of the vegetative midbrain centers. The cerebral fat center is identical with the heat regulating center. Glaessner of Vienna reported good results in the treatment of skin diseases from the use of glycocoll. He prescribes from 5 to 10 gm. daily; he secures increased diuresis and relief from edemas, and relief of itching in icterus and eczema. Pulay discussed the disturbances of mineral metabolism (defective distribution of blood calcium); he has cured urticaria by the administration of calcium lactate. Porges incriminated typhilitis (putrefaction due to mucus in the cecum) as the cause of many dermatoses. Singer has found that sclerodermia results not only from thyroid disturbances but also from ovarian and pluriglandular affections—often in connection with intestinal disturbances. Ehrmann of Vienna, Lichtwitz of Altona, and Stümpke of Hanover dealt with disturbances of metabolism in skin diseases, while Liebesny of Vienna discussed hypophysial and thyrogenic obesity. Mendel of Berlin recommended insulin (from 4 to 8 units daily) in exophthalmic goiter. Holzknecht emphasized again the close relation between bodily build and intestinal activity. Lenz of Bern, Schindler of Munich, and Strauss of Berlin discussed problems of local impaction. Professor Borgbjaerg of Copenhagen and Zweig of Vienna treated of suppurative colitis, in which sometimes autovaccines and sometimes surgical intervention produced favorable results. Good roentgenograms of diseased appendixes were shown by Gottheimer of Berlin. Professor Mühsam of Berlin spoke favorably of the diagnosis by means of contrast mediums. Dr. Einhorn of New York presented a new method for the roentgenographic representation of the gallbladder. He introduces tetrabromphenolphthalein sodium directly into the biliary ducts by a duodenal tube, instead of injecting it. Glaessner of Vienna uses in chromoscopy of the stomach a 5 per cent. solution of neutral red, which is excreted in the stomach ten minutes after its intramuscular injection. Glaessner and also Wittgenstein have found this method very useful in masked ulcer and many cases of achylia. Bergmann of Frankfort presented a new method for testing the function of a cirrhotic liver. He injects bilirubin solution intravenously. A healthy person shows a normal color index within half an hour, whereas in liver disease an abnormal coloration persists for some time. Pick of Prague demonstrated that intestinal activity varies in the two sexes. In men, flatulence occurs under conditions which in women cause atonic constipation. Müller of Vienna, however, denied that atonic constipation existed.

A protracted discussion arose on the subject of Gaucher's disease, in which Pick of Berlin, Epstein of Vienna, Lieb of Graz, and others, participated. Gaucher's disease is a familial (not hereditary) affection involving the spleen, the bone marrow and the other blood-forming organs. It often develops in infancy, and takes a chronic course. Splenic puncture assures the diagnosis.

Balint of Budapest dealt with gastric ulcer. He has found that the tissues in ulcer patients contain more acid than those of healthy persons and therefore are much more sensitive. Alkan of Berlin emphasized a relation between the parathyroids and ulcer (frequency of tetany in connection with ulcer). The surgical treatment of gastric ulcer was discussed particularly by Finsterer of Vienna, who has performed total resection under local anesthesia or splanchnic anesthesia; and also by Eiselsberg of Vienna, who expressed himself as strongly in favor of surgical treatment. Fränkel of Berlin, Csaki of Budapest, and Haberer of Graz took part in the discussion and touched on many new factors of the pathology and physiology of gastric ulcer. For its diagnosis Glaessner recommended the ingestion of calcium lactate, followed by a lactic acid test of the urine.

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(From Our Regular Correspondent)

Oct. 17, 1925.

The Medical Lectures in Essen

With the beginning of the period of inflated currency, scientists here were forced to struggle for their very existence. When, in 1920, the depreciation of the currency was commencing to affect the progress of scientific research, German learned societies and institutions of higher learning founded the so-called *Notgemeinschaft der Deutschen Wissenschaft,* with headquarters in Berlin, the object of which was to prevent collapse of German scientific research. During the four years and a half in which it functioned, it was able, with the help of funds furnished from domestic and foreign sources, but particularly with the aid of federal appropriations and contributions from the several states, to relieve the tension in many quarters and to make possible the carrying out of many plans of research. The four annual reports of the society show that many German scientific journals were kept going; many books, published during the war and postwar periods, and lacking in scientific libraries, were purchased; many important investigations in natural science and medicine were made possible, and many young scientists were given necessary financial aid.

Recently the Notgemeinschaft received a request from the mining companies in the Ruhr to hold a series of lectures for the workmen on the present status of medical research. Accordingly, the Notgemeinschaft has organized a course of eight lectures, to be delivered in Essen during the week from October 25 to 31. Invitations will be sent out by the three large leagues of mining companies. Nearly all the tickets will be reserved for them. The following topics will be discussed: the value of physical exercise as a means of avoiding tuberculosis, Bier of Berlin; the operative treatment of pulmonary tuberculosis, Sauerbruch of Munich; recent researches on human performance of labor (manual labor, fatigue, capacity), Rubner of Berlin; self-control of the body, Thomas of Leipzig; the theory of nutrition on the basis of war observations and recent researches, Müller of Munich; how we can remain healthy: prevention of infectious diseases, Krehl of Heidelberg; the value of necropsies and animal experiments with reference to public health and public welfare work, Aschoff of Freiburg, and the circulation of the blood, His of Berlin. Following the lectures, an opportunity will be given to ask questions of the speakers.

Incomes and Property Holdings of German Physicians

Some time ago, the statistical department of the Leipzig Verband or League sent out a questionnaire to all its members in regard to the relative status of physicians' incomes and property holdings in 1913 and in 1924. Replies were received from 19,781 physicians, including 4,214 specialists. Of this number, 5,620 were postwar physicians, including 1,735 specialists. The league comprises at present 38,000 members, 8,000 of whom are officials or hold definite posts; very few of the 8,000 sent in reports. The statistical material was sent in, therefore, by about 65 per cent. of the physicians in the country. Table 1 gives a comparison of the total incomes before and since the war.

TABLE 1.—*Comparison of the Total Incomes Before and Since the War*

Marks	General Practitioners, 1913, per Cent.	The Same Physicians, 1924, per Cent.	Postwar General Practitioners, 1924, per Cent.	Specialists, 1913, per Cent.	The Same Physicians, 1924, per Cent.	Postwar Specialists, 1924, per Cent.
Below 12,000.........	55	78	78	43	61.6	71
Below 20,000.........	34	19	20.5	30.7	25	21.42
Over 20,000..........	11	3	1.5	26.3	13.4	7.58
	100	100	100	100	100	100

It is readily apparent that, since the war, the number of incomes amounting to more than 12,000 marks (about $3,000) has markedly decreased. The incomes of the specialists have not been affected to the same extent as those of the general practitioners, owing to the general deterioration of public health and the fact that many members of health insurance societies are being treated as private patients, especially by dermatologists.

Table 2 shows the incomes from panel practice before and since the war.

TABLE 2.—*Incomes from Panel Practice Before and Since the War*

Marks	General Practitioners, 1913, per Cent.	The Same Physicians, 1924, per Cent.	Postwar General Practitioners, 1924, per Cent.	Specialists, 1913, per Cent.	The Same Physicians, 1924, per Cent.	Postwar Specialists, 1924, per Cent.
Below 12,000.........	93.5	94	92.5	94.8	94	94
Below 20,000.........	5.8	5.6	6.2	5	5.64	5
Over 20,000..........	0.7	0.4	1.3	0.2	0.36	1
	100	100	100	100	100	100

Table 2 disproves the assertions of the *Krankenkassen* with reference to the "enormous" incomes of the panel physicians. Before and since the war, the majority of the incomes (more than 90 per cent) were below 12,000 marks (about $3,000) per annum.

Table 3 shows the property holdings as based on the reports of 12,602 prewar physicians. Here one sees the destructive effects of the inflation of the paper currency The holdings consisted for the most part of cash, mortgages, war bonds and personal and professional effects.

TABLE 3.—*Property Holdings of Prewar Physicians Before and Since the War*

Year	No Property, per Cent.	Below 20,000 Marks, per Cent.	Below 50,000 Marks, per Cent.	Below 100,000 Marks, per Cent.	Below 200,000 Marks, per Cent.	Below 500,000 Marks, per Cent.	More than 500,000 Marks, per Cent.
1913.........	8.3	15.4	19.2	21.1	20	13	3
1924.........	37.6	37.9	17.4	5.8	0.9	0.4	0

Table 3 reveals that, before the war, 57.1 per cent. of the physicians owned more than 50,000 marks, or approximately $12,000, in property; in 1924 the proportion was only 7.1 per cent.

Marriages

ROBERT OGDEN DU BOIS, New York, to Miss Elizabeth Harsen Chisolm of Ridgefield, Conn., October 11.

LEE SPOTTSWOOD LIGGAN, Callao, Va., to Miss Alice Elizabeth Hechler of Richmond, September 9.

MILTON EDWARD BEITENMAN, Cascade, Iowa, to Miss Kathryn Dolan of Omaha, October 11.

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John R. Cowherd, Vine Grove, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1903; aged 57; died, October 10, of heart disease.

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Vienna pointed out the significance of poisonous substances developing in the intestine from putrefaction of proteins. To combat this condition, he recommended intestinal antisepsis, a diet rich in carbohydrates and poor in proteins, and free evacuation to prevent stagnation in the rectum. For conditions involving liver injury he prescribes magnesium sulphate and hexamethylenamin. Raab of Prague studied in dogs the hormonal and nervous regulation of metabolism and found that the pituitary body plays a leading part in metabolism; its function is closely associated with the function of the vegetative midbrain centers. The cerebral fat center is identical with the heat regulating center. Glaessner of Vienna reported good results in the treatment of skin diseases from the use of glycocoll. He prescribes from 5 to 10 gm. daily; he secures increased diuresis and relief from edemas, and relief of itching in icterus and eczema. Pulay discussed the disturbances of mineral metabolism (defective distribution of blood calcium); he has cured urticaria by the administration of calcium lactate. Porges incriminated typhlitis (putrefaction due to mucus in the cecum) as the cause of many dermatoses. Singer has found that scleroderma results not only from thyroid disturbances but also from ovarian and pluriglandular affections—often in connection with intestinal disturbances. Ehrmann of Vienna, Lichtwitz of Altona, and Stumpke of Hanover dealt with disturbances of metabolism in skin diseases, while Liebesny of Vienna discussed hypophysial and thyrogenic obesity. Mendel of Berlin recommended insulin (from 4 to 8 units daily) in exophthalmic goiter. Holzknecht emphasized again the close relation between bodily build and intestinal activity. Lenz of Bern, Schindler of Munich, and Strauss of Berlin discussed problems of local impaction. Professor Borgbjaerg of Copenhagen and Zweig of Vienna treated of suppurative colitis, in which sometimes autovaccines and sometimes surgical intervention produced favorable results. Good roentgenograms of diseased appendixes were shown by Gottheimer of Berlin. Professor Muhsam of Berlin spoke favorably of the diagnosis by means of contrast mediums. Dr. Einhorn of New York presented a new method for the roentgenographic representation of the gallbladder. He introduces tetrabromphenolphthalein sodium directly into the biliary ducts by a duodenal tube, instead of injecting it. Glaessner of Vienna uses in chromoscopy of the stomach a 5 per cent solution of neutral red, which is excreted in the stomach ten minutes after its intramuscular injection. Glaessner and also Wittgenstein have found this method very useful in masked ulcer and many cases of achylia. Bergmann of Frankfort presented a new method for testing the function of a cirrhotic liver. He injects bilirubin solution intravenously. A healthy person shows a normal color index within half an hour, whereas in liver disease an abnormal coloration persists for some time. Pick of Prague demonstrated that intestinal activity varies in the two sexes. In men, flatulence occurs under conditions which in women cause atonic constipation. Muller of Vienna, however, denied that atonic constipation existed.

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Zadok Thornton Daniel ⊕ Rushville, Neb.; Bellevue Hospital Medical College, New York, 1870; formerly health officer of Rushville; aged 76; died, October 21, at a hospital in Omaha.

Elijah Miller, Camden, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1886; aged 67; died at the Millville (N. J.) Hospital, October 7, of cerebral hemorrhage.

DeWitt C. Huff, Christiana, Tenn.; Vanderbilt University Medical Department, Nashville, 1877; member of the Tennessee State Medical Association; aged 79; died, October 17.

Julius Noll, Kerrville, Texas; University of Texas Department of Medicine, Galveston, 1912; member of the State Medical Association of Texas; aged 37; died, August 16.

Julius London, New York; Cornell University Medical College, New York, 1905; formerly on the staffs of the Mount Sinai and Lebanon hospitals; aged 41; died, in October.

Herbert P. Barton ⊕ Los Angeles; Jefferson Medical College of Philadelphia, 1890; physician in charge of the Clara Barton Hospital, where he died, October 15, aged 59.

Clair Scofield Campbell, Wauseon, Ohio; Detroit College of Medicine and Surgery, 1894; served in the M. C., U. S. Army, during the World War; aged 53; died, October 21.

Joseph Howard Buffum, San Francisco; New York Homeopathic Medical College, 1873; aged 76; died, September 15, at the Wakefield Hospital, of chronic nephritis.

Marcellus Clinton Carpenter, Fairfield, Iowa; Rush Medical College, Chicago, 1882; member of the Iowa State Medical Society; aged 68; died suddenly in October.

Cyrus K. Ritchie, Velva, N. D.; Barnes Medical College, St. Louis, 1903; member of the North Dakota State Medical Association; aged 67; died, September 29.

Ernest Shillito, Marcellus, Mich.; Kentucky School of Medicine, Louisville, 1888; aged 61; died, October 9, of chronic nephritis and cerebral hemorrhage.

Laban H. Shank, Empire, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1889; died suddenly in October, of heart disease.

Mary C. Ford, Dover, N. J.; New York Medical College and Hospital for Women, New York, 1875; aged 89; died, October 17, at Essex Falls.

James A. MacMahon, St. Catharines, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1887; aged 63; died, October 29.

William Van Doren ⊕ Scranton, Pa.; Medical Department of the University of the City of New York, 1885; aged 67; died in September.

Alexander Raymond Harvie, Orillia, Ont., Canada; Victoria University Medical Department, Toronto, 1885; aged 65; died, September 28.

James Hiram Eastland ⊕ Mineral Wells, Texas; Vanderbilt University Medical Department, Nashville, 1903; aged 49; died, October 21.

Stephen B. Harmon, Meridian, Miss.; University of Louisville (Ky.) School of Medicine, 1881; aged 75; died, October 10.

Johann H. William Meyer ⊕ La Porte, Ind.; Rush Medical College, Chicago, 1876; formerly a druggist; aged 72; died, October 21.

Robert N. Herbert, Aspen Hill, Tenn.; University of Nashville Medical Department, 1867; aged 82; died in October.

James Grant Hainline, Denver; Keokuk Medical College, 1892; aged 63; died, October 21, of cerebral hemorrhage.

James D. Beer, Wooster, Ohio; Starling Medical College, Columbus, 1889; aged 66; died, October 20, of pneumonia.

William Henry Dunham ⊕ Cincinnati; Cincinnati College of Medicine and Surgery, 1880; aged 79; died in October.

Millie Elizabeth Ellis, Brooklyn; Boston (Mass.) University School of Medicine, 1903; aged 54; died, October 24.

James Osborn Davis, Middletown, N. Y.; Albany Medical College, 1875; aged 78; died, October 18, of pneumonia.

Thomas Manly Dillingham, New York; Boston University School of Medicine, 1874; aged 74; died, October 26.

Joseph Cuneo, Denver; University of Naples, Italy, 1887; aged 69; died, October 16, following a long illness.

Patrick J. Watters ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1879; aged 73; died, October 21.

J. S. Abernethy, Charlotte, N. C.; College of Physicians and Surgeons, Baltimore, 1878; died recently.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Grandma's Compound Sarsaparilla.—About one hundred bottles of "Grandma's Compound Sarsaparilla" shipped from San Antonio, Texas, by the Park Laboratory Co. of that city to California in September and November, 1922, were seized by the federal officials on the charge that the product was misbranded. The preparation was analyzed in the Bureau of Chemistry which reported that it consisted essentially of potassium iodid (0.3 per cent.), alcohol (2.6 per cent.) with plant extractives including a laxative drug, sugar and water, flavored with sassafras oil. The preparation was declared misbranded, first because the label declared the presence of 10 per cent. of alcohol when actually there was only about 2½ per cent.; further, because it was fraudulently claimed to be a specific for all diseases of the blood, syphilis, rheumatism, erysipelas, pimples, boils, ringworm, female weakness, general debility and all constitutional diseases. In February, 1924, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 12658; issued February, 1925.*]

Hooper's Anodyne.—The O. P. Hooper Chemical Company, Chester, Pa., shipped in June, 1922, a quantity of "Hooper's Anodyne" from Pennsylvania to New York. The federal authorities seized the product on the charge that it was misbranded. When analyzed in the Bureau of Chemistry it was reported to consist essentially of morphin hydrochlorid, glycerol, sugar, salicylic acid and water, flavored with spearmint. The following claims were printed on the bottle:

> "Administered To Children Suffering From Colic Summer Complaint or Teething It Produces A Most Wonderfully Beneficial Effect . . . for Violent Colic . . . in Teething."
>
> "For Babies Relieves Colic, Aids Digestion . . . makes Teething Easy . . ."
>
> "Invigorates The Stomach and Bowels, Prevents Vomiting, Also Inflammation Of The Stomach and Gives Tone and Energy To The Whole System."
>
> "Will almost instantly Relieve . . . Colic."

In other words, this preparation belonged to that vicious group of nostrums sometimes spoken of as "baby killers." The stuff was declared misbranded because the claims made for it were false and fraudulent. In September, 1924, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 12755; issued March 13, 1925.*]

Ark-A-Lu.—The Vawter Drug Stores, Monroe, La., in June, 1923, shipped a quantity of "Ark-A-Lu," which the federal authorities declared was misbranded. The Bureau of Chemistry reported that analysis showed the stuff to consist essentially of Epsom salt, iron chlorid, nitric and hydrochloric acids, and water, with wintergreen flavoring. The label stated in effect that the preparation was an effective remedy and cure for stomach, liver and kidney diseases, rheumatism, piles, "Blood Diseases, Chills, Fever, Ague and Nervousness." These claims, naturally, were declared false and fraudulent and in October, 1924, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 12766; issued March 13, 1925.*]

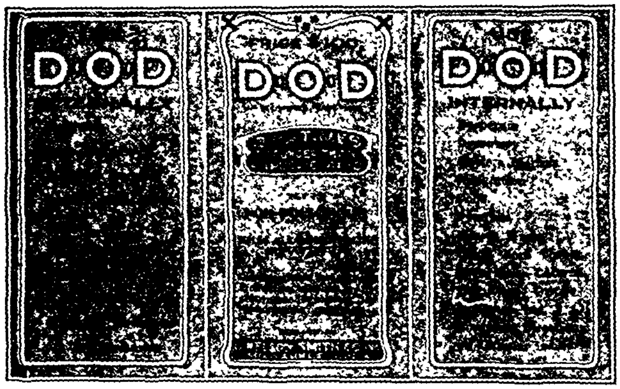
Sanita.—The Newer Novelties Co., Los Angeles, Cal., are alleged to have shipped in interstate commerce in October, 1922, a quantity of "Sanita." When analyzed by the Bureau of Chemistry it was reported that the product consisted essentially of capsules of cocoa butter and tannin with a trace of boric acid. The product was sold under the following *claims:*

> "Sanita . . . the most effective agent for the cure of Leucorrhoea . . . Ulceration and Inflammation of the Womb or Cervix, painful or suppressed menstruation, vaginitis, and to relieve the painful tenderness so frequently following the menses. . . . Weaknesses which manifest themselves by falling of the womb, etc., soon yield to the wonderful curative properties of Sanita."

These claims were declared false and fraudulent, and in May, 1923, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment 13314; issued July, 1925.*]

D-O-D.—One R. Burbach of West Allis, Wis., is alleged to have shipped into Ohio a quantity of "D-O-D," which the government declared misbranded. Analysis of a sample of the article by the Bureau of Chemistry showed it to consist approximately of 93 per cent. baking soda, 6 per cent. potassium permanganate, and a small quantity of Epsom salt. Some of the claims made on the label for this product were:

> "Guaranteed, when used according to directions, to relieve any disease caused by poison or Bacteria or money refunded."
>
> "It Kills All Poison in the human system."
>
> ". . . a remedy has been discovered that will kill poison and bacteria in the human system wherever it can be reached, regardless of the disease—and that remedy is D-O-D . . . provides permanent relief to sufferers from every disease that is caused by poison . . . most all diseases are caused by poison in the human system . . . taken internally will kill the poison in the stomach and bowels which is responsible *for* . . . Dyspepsia, Dysentery, . . . Cholera Morbus, Ulcers, Ptomaine Poison and many other kindred ailments . . . Gangrene . . . Eczema, Piles, . . . Rashes, . . . and other skin diseases."



There were many other claims even more ridiculous and fraudulent than those quoted. In July, 1923, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 12770; issued March 13, 1925.*]

The files of the Bureau of Investigation contain a good deal of material on D-O-D. From this it appears that the stuff was put out by C. Nelson Smith Co., Inc., Milwaukee. Part of the advertising issued in 1923—at the time the federal seizures were made—are to the effect that the large Allis Chalmers steel plants at West Allis, Wis., "used D-O-D exclusively"; a testimonial purporting to be from the general works manager of that concern formed part of the advertising puffery.

Rose's Whooping Cough Remedy.—Aschenbach & Miller, Inc., of Philadelphia are alleged to have shipped in May and August, 1924, from Pennsylvania to Maryland, a quantity of "Dr. J. S. Rose's Whooping Cough Remedy." The Bureau of Chemistry reported that analysis of a sample showed this preparation to contain syrup, potassium nitrate, arsenic and cyanid. This dangerous mixture was sold under the claim that it was a cure for whooping cough—a claim that was declared false and fraudulent. In April, 1925, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 13317; issued July, 1925.*]

A. D. S. Special Kidney and Bladder Pills.—More than twenty-five hundred packages of A. D. S. Special Kidney and Bladder Pills shipped by the American Druggists' Syndicate from New York to California in November, 1924, were declared misbranded. The Bureau of Chemistry analyzed samples of the preparation and reported that the pills consisted of hexamethylenamine and extracts of plant drugs, including small quantities of resins and volatile oils mixed with magnesium carbonate. They were coated with sugar and chalk and colored blue. The label declared that the pills were a treatment for simple inflammatory conditions of the kidneys and bladder. These claims the government declared false and fraudulent and in January, 1925, the American Druggists' Syndicate of the Pacific Coast, having appeared as claimant, judgment of condemnation and forfeiture was entered, and the court ordered that the product be released to the concern on payment of costs and the execution of a bond conditioned in part that the preparation be relabeled so as to be brought into compliance with the law.—[*Notice of Judgment No. 13015; issued April 5, 1925.*]

Correspondence

"PIGMENTED MOLES"

To the Editor:—In The Jounal, October 31, is a note on "Pigmented Moles." I do not think that the treatment recommended is radical enough. The time to stop a horse from running away is just before he starts, and if we wait with pigmented moles until they begin to grow, the damage is already done.

In The Journal, July 9, 1904, is a paper which I read before the Section on Surgery and Anatomy of the American Medical Association on "The Danger of Allowing Warts and Moles to Remain Lest They Become Malignant," and gave the history of twenty-five cases as a warning. Among the cases reported, some of them had existed for thirty, forty and even fifty years, and at last suddenly became malignant. In every case the entire thickness of the skin should be removed with the mole itself.

As an incident connected with that paper, I always remember that the next morning, on meeting Osler, he said to me, "From brain tumors to warts and moles—the first evidence of senility!" How characteristic of him!

But, soberly speaking, I think the advice that I gave in that paper is wise—that all such moles should be removed; for when they have once started on their malignant course, it is almost certain to be too late. Moreover if on an exposed part of the body they are a blemish. By an intracuticular suture there will be an almost invisible scar.

W. W. Keen, M.D., Philadelphia.

PERSPIRATION AND THE ELECTRIC FAN

To the Editor:—In The Journal, October 31, page 1420, a correspondent asks as to the employment of an electric fan for the surgeon in the operating room who is given to perspiration. His question is partially answered by Kirschner, on page 1439 of the same issue. He distinctly advises the use of electric fans to play on the operating staff above the table.

For a good many years I have used in the operating room a pretty fair sized electric fan, tilted at such an angle that the breeze strikes the head and shoulders of myself and my assistants, but is above the level of the patient. The experience has been in every way exceedingly satisfactory, as such a fan adds materially to the comfort and well being of those within reach. There has not been the slightest evidence of any ill effect on the patients.

J. F. Baldwin, M.D., Columbus, Ohio.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request.

DECIDUOUS TEETH

To the Editor —A healthy boy, aged 4 weeks, developed a second incisor tooth, which was attached to the soft parts only, without root, and was easily removed with dressing forceps The tooth is only a shell of a crown but is well formed At 6 months he developed a similar first incisor, which the mother removed I have them both. He is now 9 months old and has three normal teeth, but no sign of tooth in the left upper whence these two early teeth were removed Kindly inform me whether this is unusual and worth reporting

W E. Brenneman, M D, Chicago

Answer —Many cases have been reported in which the deciduous tooth erupts before a sufficient amount of the root has been formed to hold it in place In such cases the crown becomes loose and may easily be removed with the fingers. The child will doubtless be short the two teeth mentioned in the deciduous set.

DIFFERENTIAL STAINING OF MYELOCYTES

To the Editor —Please furnish me with directions for differential staining of myelocytes from cells of lymphoid series by means of alphanaphthol and of dimethylparaphenylendiamin

Lloyd Jonnes, M D, Circleville, Ohio.

Answer —A Simpler method

1. The slides are fixed with 4 per cent formaldehyd solution for from twenty to thirty minutes.
2. They are put for about three minutes into a 1 per cent solution of alphanaphthol in water containing 1 per cent of potassium hydroxid
3. The slides are transferred without drying or washing into a 1 per cent. solution of dimethylparaphenylendiamin (base) until they are blue.
4. They are dried with a filter paper.

Both solutions 2 and 3 may be diluted with a little water.

B The stain keeps longer with the following method:

1. One gram of alphanaphthol is heated in 100 c.c. of water until it boils, and then concentrated solution of potassium hydroxid is added until the naphthol is completely dissolved. The supernatant fluid is used after cooling. This should be kept in a dark bottle
2. A 1 per cent solution of the dimethylparaphenylendiamin base in water should be prepared without boiling. This is used after a few days of standing.
3. Equal parts of 1 and 2 are mixed and filtered.
4. The slide is kept for two hours in a solution of formaldehyd (40 per cent), 1 part, and alcohol, 3 parts
5. The slide is kept in Mixture 3 until the leukocytes are distinctly blue.
6. The slide is washed quickly with water
7. It is put for three minutes into 1 part of compound solution of iodin and 2 parts of water.
8. It is kept for twenty-four hours in water with the addition of some lithium carbonate.
9. It is stained with alum-carmin, and perserved in glycerol-gelatin.

TROPIN, TUBERCULIN AND IRON CACODYLATES

To the Editor —1 Has tropin been tried in acute glaucoma? 2. What is the status of tuberculin in the treatment of consumption? 3 What is the status of cacodylates of iron as a tonic? Are they worth while or questionable?

D. H P., California

Answer.—1. No mention of the use of tropin in glaucoma has been found According to Cushny (Pharmacology and Therapeutics, 1924), "atropin and its congeners are contraindicated when there is any suspicion of glaucoma, as, owing to their action on the intra-ocular pressure, they may either aggravate the disease already present or precipitate an acute attack."

2. The following statement is made in the Handbook of Therapy (Osborne and Fishbein, 1923). "Tuberculin is not in itself curative, but it is, at most, a stimulant to the curative efforts of the organism. Many observers are of the opinion that it is of value in selected cases of tuberculosis. . . . Its administration requires careful selection of the case, close observation of the patient and appropriate regulation of the dose."

Also, in this connection, our correspondent is referred to: "Ponndorf Vaccination," Queries and Minor Notes (The Journal, October 31, p. 1421).

3. Ferric cacodylates have the properties of iron and of cacodylates. In 1923 the Council on Pharmacy and Chemistry omitted iron cacodylate from New and Nonofficial Remedies because it had become convinced that this drug represents an irrational and useless method of the administration of iron and arsenic. The Council held that "a much more rational method of administration of these two drugs would be separately, in which case a better control of the dosage is possible."

INDICATIONS FOR SPINAL PUNCTURE

To the Editor —Please give me the most essential clinical (physical) signs (not diseases) that a patient or patients may show which are absolute indications for the attending surgeon to perform an exploratory lumbar puncture. Furthermore, in which diseases of the central nervous system is such lumbar puncture contraindicated?

Louis M. N. Federici, M D, Springfield, Mass.

Answer —Exploratory lumbar puncture is indicated in paralysis or paresis, the cause of which is unknown; convulsions, the etiology of which is not clear, and rigidity of the neck when combined with Kernig's, Brudzinski's and Babinski's signs.

Suspected tumor of the brain, especially of the cerebellum, is considered by some clinicians a contraindication for lumbar puncture, because of the possibility that a sudden release of cerebrospinal fluid may produce a herniation of the brain. However, when a manometer is used or when care is taken not to release the cerebrospinal fluid too suddenly or to collect too much fluid at one sitting, lumbar puncture may be resorted to even in cases of brain tumor.

LACTIC ACID MILK

To the Editor —Regarding lactic acid milk, are the cultures sold by the various laboratories of any marked therapeutic value? Are they of more value than milk sugar? What is the established therapeutic value of bile salts?

C E. Eaton, M D, Seattle.

Answer —The article "Lactic Acid-Producing Organisms and Preparations" (N. N. R., 1925, page 191) brings out that there is considerable evidence in favor of the therapeutic value of soured milk, particularly of sour milk containing an abundance of living *B. acidophilus*. Whereas the administration of *B. acidophilus* has for its object the implantation of living *B acidophilus*, there are reports which indicate that the administration of milk sugar may produce the same results through promoting the growth of aciduric bacteria normally present in the intestinal flora.

An estimate of the value of bile salts appears in New and Nonofficial Remedies, 1925, page 71.

HAIR DYE

To the Editor —I have been asked whether there is a reliable and noninjurious hair dye If question is published, please do not mention name

M D., New Jersey.

To the Editor —One of my patients has black hair, which is turning gray, and for good reasons she wants to dye it What can I recommend that will be the least harmful?

Amy Weiss, M D., Chicago.

Answer —The least dangerous black dye is the old combination of iron salts and tannic and gallic acids The hair is washed thoroughly, dried, and then washed with:

	Gm or C c.	
Ferrous sulphate	0|6	gr. x
Glycerin	32|0	oz i
Water to make	500|0	O i

The hair is allowed to dry and is then brushed thoroughly. This procedure is repeated each day for three days. Then, with a fine comb, this solution is applied:

	Gm. or C c.	
Gallic acid	0|25	gr. iv
Tannic acid	0|25	gr iv
Water to make	50|0	oz. jss

One should avoid touching the scalp with this, or a temporary stain may result. As further color is required, the two solutions may be used on the same day, always allowing the hair to dry, and brushing it, after the first one, then waiting an hour or more before applying the second. There are other more brilliant black dyes, but all are more or less dangerous.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

DELAWARE: Wilmington, Dec. 8 9 10 Pres Med Coun, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

MARYLAND: Baltimore, Dec 8 11. Sec, Reg Bd, Dr. Henry M. Fitzhugh, 1211 Cathedral St, Baltimore, Sec, Homeo Bd, Dr. J. S. Garrison, 517 Old Orchard Rd, Baltimore.

NORTH CAROLINA: Raleigh, Nov 25 (Endorsement of Credentials only). Sec, Dr. Kemp P B Bonner, Morehead City

OHIO: Columbus, Dec 2-4. Sec, Dr. H M. Platter, Hartman Hotel Bldg, Columbus

TEXAS. Dallas, Nov. 17-19. Sec, Dr T. J. Crowe, 918 919 Mercantile Bank Bldg, Dallas

VIRGINIA: Richmond, Dec 8 11. Sec., Dr J W. Preston, 720 Shenandoah Life Bldg, Roanoke

WISCONSIN: Milwaukee, *Basic Sciences*, Dec 18-19. Sec, M F. Guyer, Madison.

Illinois June Examination

Mr. V. C. Michels, superintendent of registration, of the Illinois Department of Registration and Education, reports the written and practical examination held at Chicago, June 23-26, 1925 The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 160 candidates examined, 145 passed and 15 failed. Fifteen candidates were licensed by reciprocity. Four reciprocal candidates failed on clinical examination. The following colleges were represented·

PASSED

College	Year Grad	Per Cent.
Chicago Medical School	(1922)	75, (1923) 77, 84, (1924) 75, 75, 76, 77, 78, 79, 82, 85, 90, (1925) 82
Jenner Medical College	(1917)	79
Loyola University School of Medicine	(1925)	75, 77, 78, 78, 79, 79, 79, 80, 80, 80, 81, 81, 81, 83, 84, 84, 88
Northwestern University Medical School	(1925)	75, 77, 77, 78, 78, 78, 79, 79, 80, 80, 80, 81, 81, 81, 81, 81, 81, 81, 82, 82, 82, 82, 83, 83, 84, 84, 84, 85, 85, 88
Rush Medical College	(1925)	75, 81, 81, 82, 82, 83, 83, 84, 85, 85, 86, 88, 88, 88, 89, 90
The General Med Coll, Chicago	(1924)	78, 78, 79, 80, 83, 84, 86, 86
University of Illinois College of Medicine	(1925)	76, 78, 78, 79, 80, 80, 80, 81, 81, 81, 81, 82, 82, 82, 82, 83, 83, 83, 84, 85, 85, 86, 86, 86
State University of Iowa College of Medicine	(1924)	85
University of Louisville School of Medicine	(1924)	83
Johns Hopkins University Medical Department	(1923)	86
University of Michigan Medical School	(1924)	83, 88
University of Minnesota Medical School	(1924)	82
St Louis University School of Medicine	(1920)	82, (1924) 77, 80, 87, 89, (1925) 81
Washington University School of Medicine	(1924)	79, 80, 80, 81, 82, 85, 86, 86
Syracuse University College of Medicine	(1924)	83
University of Oregon Medical School	(1924)	78, 83
Jefferson Medical College of Philadelphia	(1922) 87, (1924)	87
Meharry Medical College	[illegible]	76
Vanderbilt University School		86
Baylor University College of		81
Queen's University Faculty of		85
University of Toronto, Faculty		85
University of Graz, Austria	(1919)*	79
University of Vienna, Austria	(1921)*	82
University of Kharkov, Russia	(1914)*	77
University of St. Vladimira, Kief, Russia	(1923)*	79
University of Berne, Switzerland	(1912)	79
University of Zurich, Switzerland	(1922)*	79

FAILED

College	Year Grad.	Per Cent.
Chicago Medical School	(1923) 73, (1924)	70, 76†
Loyola University School of	(1925)	78†
Eclectic Medical University,	(1917)	76†
University Medical College of	(1911)	75†
Meharry Medical College	(1914)	51
Royal University of Palermo, Italy	(1923)*	68
University of Naples, Italy	(1920)* 68, 69, (1923)*	74
University of Cluj, Roumania	(1922)*	73
University of Kharkov, Russia	(1915)*	‡
University of Odessa, Russia	(1918)*	77†
University of Saratov, Russia	(1916)*	74

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Hahnemann Medical College and Hospital, Chicago	(1909)	Tennessee
[illegible]	[illegible]	Wisconsin
[illegible]	[illegible]	Colorado
[illegible]	[illegible]	Indiana
[illegible]	[illegible]	Tennessee
[illegible]	[illegible]	Maryland
University of Minnesota Medical School	(1923)	Minnesota
University of Nebraska College of Medicine	(1923)	Nebraska
Hahnemann Med College and Hosp of Philadelphia	(1898)	Penna.
Meharry Medical College	(1917)	Texas
Vanderbilt University School of Medicine	(1921)	Indiana

* Graduation not verified by the American Medical Association.
†Fell below 60 per cent. in one or more subjects.
‡ No grade given.

Book Notices

LE TRAITEMENT DE LA SYPHILIS PAR LES COMPOSÉS ARSENICAUX ET LES PRÉPARATIONS BISMUTHIQUES AVEC L'EXPOSÉ DES NOUVELLES MÉTHODES DE LABORATOIRE Par le Dr. Lacapère Avec la collaboration du Dr. Ch Laurent, Medecin des hôpitaux de Saint Etienne. Fourth edition Paper Price, 16 francs. Pp 341. Paris: Masson et Cie, 1925.

This deals particularly with the use of arsenical and bismuth preparations in the treatment of syphilis. One also finds the necessary information regarding the use of mercury and potassium iodid. A portion of the book is devoted to the laboratory measures employed in the diagnosis and surveillance of this disorder. The last section has to do with the applied therapeutics of syphilis, dealing with prophylaxis, primary and secondary syphilis, tertiary syphilis and the congenital form In connection with the last named variety, rules are laid down for the marriage of syphilitic patients and also for treatment during pregnancy. The author prefers arsphenamin but believes that neo-arsphenamin can be made almost as efficient by combining it with bismuth. He adheres to the principle of small doses at first, gradually increasing to the maximum amount. These arsenicals are best given intravenously Of the bismuth preparations the hydroxid and bismuth quinin iodid are especially recommended. Mercury he believes to be largely supplanted by bismuth. Sulpharsphenamin, given intramuscularly, is favored for the treatment of congenital syphilis The irreducible Bordet-Wassermann reaction should be attacked by arsphenamin plus an insoluble bismuth salt Lacapère, however, mentions satisfactory results in such cases following a series of lipiodol injections. The arsphenamins, intravenously, represent the best agents for immediate sterilization or for the cure of a grave lesion. In a generalized syphilitic infection the association of arsenic and bismuth gives durable results When the clinical and humoral symptoms have been mastered, bismuth is particularly indicated as the basic treatment by reason of its long continued action Potassium iodid is recommended in the cerebral lesions of tertiary syphilis and also in the attentuated forms of congenital syphilis characterized by dystrophic lesions due to endocrine involvement (Hutinel). In those intolerant to potassium iodid, Lacapère adds to it a little tincture of belladonna or else gives the patients epinephrin by mouth, in 20 minim (1.25 c c) doses, two, three or more times daily, thus neutralizing the vasodilator effects of the iodid. On account of the same tendency, he does not give the iodid during a course of arsenical treatment. The Bordet-Wassermann and Hecht tests ought to be done together, since reliance should not be placed on the Hecht alone Vernes' flocculation test is simple but lacking in sensitiveness. Lumbar puncture is best performed during the fourth year of infection, as Ravaut has suggested. The colloidal benzoin test of Guillain and his collaborators is recommended as being much simpler than the colloidal gold test. The internal use of arsenical derivatives as prophylactic agents is discussed, and stovarsol is accorded considerable praise No mention is made of the intravenous use of sodium thiosulphate for the dermatoses due to the arsenicals, but it is recommended for local injection when a portion of the arsenical drug has been given extravenously All in all, this is a comprehensive and practical summary of the subject from the pen of a well known French clinician. A fourth edition within seven years attests to its popularity. It is to be highly recommended to those interested in this subject.

SURGICAL TREATMENT OF PULMONARY AND PLEURAL TUBERCULOSIS By J Gravesen, M D, Medical Superintendent, Vejlefjord Sanatorium, Denmark, with a foreword by S Vere Pearson, M D, M R C P., Resident Physician Mundesley Sanatorium Cloth Price, $3 50 Pp 155, with 87 illustrations New York: William Wood & Co, 1925

In the last few years there has been a growing interest in the treatment of pulmonary tuberculosis by surgical intervention. Artifical pneumothorax has been the chief method employed by the majority of men interested in this special field. Since the World War, a great tendency has developed to go one step farther and collapse a lung by those methods as first advocated by Brauer and Sauerbruch. Gravensen's treatise comes at a most opportune time. He discusses at length the various procedures used in the surgical treatment of pulmonary tuberculosis. Especially clear cut are his indications and contraindications for those methods especially advocated by him. No less clear are the successive steps needed in the operative technic; at the same time, he calls our attention to the important fact that medical treatment must be instituted along with such surgery as may be indicated in each individual case. Under the caption of collapse therapy, Gravensen describes artificial pneumothorax, thoroscopy with cauterization, extrapleural thoracoplasty, pneumolysis and apicolysis and phrenicotomy. This is followed by a section on the surgical treatment of pleural tuberculosis. Here he deals with serous effusions, empyema and spontaneous pneumothorax. The volume is ably written. No question is left as to what to advise patients as to proper treatment. While not all would agree with him that the internist should also be trained in the surgical field, one cannot close this book without feeling that it is well worth while and that Dr. Gravensen has added much of value in his presentation of the subject.

Pathology and Bacteriology of the Eye. By E. Treacher Collins, F.R.C.S., Consulting Surgeon to the Royal London Ophthalmic Hospital, and Stephen Mayou, F.R.C.S., Surgeon to the Central London Ophthalmic Hospital. Second edition. Cloth. Price, $10. Pp. 731, with 310 illustrations. Philadelphia: P. Blakiston's Son & Co., 1925.

The conception of this work is unique in ophthalmology in that it presents pathologic changes in the eye not as alterations of this or that tunic but as disturbed physiologic conditions and, again, in that it is not primarily a study of disease affecting the eye but a study of the organism, taken often as a whole, in one or another stage of its evolution or life history as influenced by untoward circumstances. Thus, there are no chapters on keratitis or iritis, but chapters on aberration in development, derangements of circulation, derangements from pernicious mechanical, chemical and other conditions, reactions of the organism to inflammation and, lastly, processes of involution and degeneration. At first the book seems very general and sketchy, but as one reads on the advantages of the method are appreciated, especially the avoidance of useless classification and confusing detail. However, most of us are trained in another school; and many will say that there is really not enough microscopic anatomy, cytology (except in conjunctivitis) and differential diagnosis. The consideration of suppurative disease of the cornea seems especially inadequate in view of an easy correlation of herpetic disease, dry abscess, aspergillus keratitis, disciform keratitis, ulcus serpens and ring abscess. On the other hand, the chapter on obstruction of the central vein is very good, as is that on inflammation in general and, in particular, the one on immunity. The presentation of the anatomic relations of disturbance of lymph circulation is excellent. The work makes no pretense to be encyclopedic, and the fact that it is a treatise on stages of evolution makes it difficult to use as a reference book. This shortcoming, however, is more than made up by the fact that its nature and its perspective render it peculiarly adapted to the use of those who are entering on the study of ophthalmology from the field of general practice or after a general course in medicine and a hospital service. There is no other book in the field of ophthalmology that will so interest and serve one thus placed; it might well become the key-book for the beginner in ophthalmology.

Newer Methods of Ophthalmic Plastic Surgery. By Edmund B. Spaeth, M.D., F.A.C.S., Major, M. C., U. S. A., Chief, Eye Clinic, Walter Reed U. S. Army General Hospital. Washington, D. C. Cloth. Price, $5 net. Pp. 258, with 170 illustrations. Philadelphia: P. Blakiston's Son & Co., 1925.

Plastic surgery is essentially individualistic, and consequently any writing dealing with that subject must treat either with basic principles or else with individual examples. But the latter are so diversified that they cannot assume any great rôle in a textbook. The author has kept these truisms well in mind and has succeded in producing a textbook of ophthalmic plastic surgery that occupies a lone position on the stage of ophthalmic literature. True enough, plastic surgery is touched on in various textbooks on ophthalmology and ophthalmic surgery, but only in a desultory manner; hence, the book devoted to the basic principles and various basic phases of plastic surgery within the realm of the ophthalmologist receives a warm welcome. There is a foreword by Brig. Gen. W. H. Wilmer, M. O. R. C., U. S. Army. Part I contains 106 pages, devoted to the basic principles of plastic surgery, to the types and technics of the various skin grafts, and to the appliances that are used to augment cosmetic correction that has been started through surgical procedure. This part is well illustrated both by diagrams and by actual photographs, and is written in a clear and convincing manner. Part II deals with individual basic operations, such as those aimed at the correction of entropion, trichiasis and other lid deformities, with canthoplasties and tear sac procedures, with the repair of defects from tumor losses, and finally with the various phases of physiotherapy about the eye. The illustrations of the second part are not so good as are those of the first part, but the text is written in just as clear an convincing a manner. The book making is good, and the proof reading has been thorough and careful. All in all, there is much of value in this book that will justify a careful perusal by even the most experienced ophthalmic surgeon.

Ocular Therapeutics. A Manual for the Student and the Practitioner. By Doctor Ernst Franke, A. O. Professor of Ophthalmology, University of Hamburg. Translated by Clarence Loeb, A.M., M.D., Oculist to the Michael Reese Hospital, Chicago. Cloth. Price, $3.50. Pp. 183. St. Louis: C. V. Mosby Company, 1925.

The first ninety pages of this valuable handbook are devoted to the general treatment that only too frequently the oculist has to utilize in conjunction with the local treatment of an ocular complaint. Tuberculosis comes first, and under this the various forms of tuberculin are dealt with at length from a purely practical standpoint. Syphilis is gone into at somewhat greater length and, as the author states, three substances come into consideration: mercury, arsphenamin and iodin. Serotherapy and organotherapy, protein therapy and paraspecific therapy receive somewhat shorter notice, as their value in ophthalmology has not yet been determined accurately. Ray and light treatment and physiotherapy are dealt with at somewhat greater length than is customary in a book originating in this country, and this very fact adds to the value of the book. The second part of the book deals with the local treatment of the eye, both chemical and mechanical, and the action of the various forms is discussed fully. A long list of the drugs that are used locally, with their action and dosage, is included and serves as a handy reference table for the busy oculist. The last part of the book is in the form of a synopsis of the various diseases of the eye and appendages and the usual treatment employed. This is more for the beginner in ophthalmology and, on the whole is the least useful portion. The diction savors somewhat of the "made in Germany" type, but this does not detract from the usefulness of the book.

The Principles of Public Health Engineering. By Earle B. Phelps, B.S., Professor of Sanitary Science, College of Physicians and Surgeons, Columbia University. Cloth. Price, $3. Pp. 265, with 35 illustrations. New York: The Macmillan Company, 1925.

This book is prepared for two classes of students—the health officer who has had little or no engineering training, and the sanitary engineer with little or no knowledge of public health principles. In it are treated such topics as lighting, water supply and sewerage, atmospheric pollution, ventilation of buildings, and pasteurization of milk. The book is compact; the style, clear and concise. The proof-reading might be better, one important error being that on page 142, where aerobic is used for anaerobic. On page 158 "steam" is used in place of stream. There is occasionally a tendency to pedantry, as when "phreatic" water is used as synonymous with ground water. The discussion of air conditioning, including the control of atmospheric pollution, is particularly clear and outspoken. The author declares that "artificial humidification offers no particular advantages in the first place and, as practiced by the evaporation of water in the room from home-made or commercial 'humidifiers,' is generally futile." The dangerous effect of the gases from automobiles does not seem to be mentioned. The book as a whole is sure to be of real use to students of public health. The value of a second edition would be enhanced by the substitution for collateral reading of more recent references than those given at the end of the several chapters.

PERSONAL AND COMMUNITY HEALTH. By Clair Elsmere Turner, Associate Professor of Biology and Public Health in the Massachusetts Institute of Technology. Cloth. Price, $2.50. Pp. 426, with 53 illustrations. St. Louis: C. V. Mosby Company, 1925.

This book has been prepared primarily for college students and will be a welcome addition to the few discussions that ought to be placed in the hands of such students as a part of any general education. Professor Turner's book combines in one volume the two subjects of personal and community hygiene. The first six chapters deal with the health of the individual and include the hygiene of nutrition, action, nervous system and reproduction, and oral hygiene. The material is well presented and adequate for its purpose. Three chapters deal with disease prevention and immunity. It is doubtful whether the theories of immunity should have been included. They are more likely to confuse than interest the general student. The remainder of the book deals with community hygiene. The subjects are logically treated and accurately presented. Perhaps some criticism might be made of the relatively large amount of space devoted to sewage disposal compared to that given to food and water sanitation. The chapter on public health administration should be particularly commended. On the whole, Professor Turner has prepared an excellent and useful book.

THE NATURE OF ENZYME ACTION. By Sir W. M. Bayliss, M.A., D.Sc., F.R.S. Fifth edition. Boards. Price, $3.25 net. Pp. 200, with 8 illustrations. New York: Longmans, Green & Co., 1925.

This edition of Bayliss' monograph is organized like the fourth, but includes numerous pertinent references to work published since the preceding edition appeared. New material included in the text amounts, all told, to about ten pages incorporating significant material obtained from approximately forty new contributions to the field. New work reported has strengthened rather than modified Bayliss' general conclusions, which are expressed identically in the fourth and in this edition. Bayliss teaches that enzymes obey the usual laws of catalytic phenomena, particularly in heterogeneous systems in which reactions taking place are essentially at the surfaces of the colloidal enzymes. The author believes that reactions catalyzed by enzymes are reversible, the equilibrium point being determined by the effective concentration of water. In vitro, water necessarily predominates; hence, nearly complete hydrolysis is reached, whereas in vivo there exist mechanisms for the diminution of the effective concentration of water favorable to synthesis.

SIMPLIFIED NURSING. By Florence Dakin, R.N., Inspector of Schools of Nursing, State of New Jersey. Cloth. Price, $3. Pp. 499, with 77 illustrations. Philadelphia: J. B. Lippincott Company, 1925.

While there are available numerous outlines of nursing methods, few are so direct and practical in their instructions as the simple text presented by Miss Dakin The author has been at particular pains to prepare a book that would be useful for high school classes, home nurses and practical nurses, as well as for trained attendants. She has collected all the essentials and carefully avoided going beyond the point of legitimate nursing practice. Her book is, in every sense of the word, a practical one.

KOMPENDIUM DER TOPISCHEN GEHIRN- UND RUCKENMARKSDIAGNOSTIK. Kurzgefaste Anleitung zur klinischen Lokalisation der Erkrankungen und Verletzungen der Nervenzentren. Von Robert Bing, Professor an der Universität Basel. Sixth edition. Paper. Price, 9,90 marks. Pp. 242, with 102 illustrations. Berlin: Urban & Schwarzenberg, 1925.

Practically no difference is apparent in the text of this edition and the previous one of 1922. However, further improvement has been made in the numerous and excellent diagrams and illustrations. The work is more than ever a standard guide to the difficult paths leading to correct topical diagnosis of lesions of the brain and cord.

Medicolegal

Physician Without Authority to Employ Another

(Johnson et al. v. Roberts (Ala.), 103 So. R. 563)

The Supreme Court of Alabama, in reversing a judgment that was rendered in favor of plaintiff Roberts, says that an employee of the defendants, partners trading as Johnson & Thompson, was injured in his foot or ankle while working at his employment. The employee testified that Mr. Thompson had him removed to a hospital and engaged a physician to attend him, telling the physician that the defendants would pay for his services and not to leave a stone unturned in attempting to save the foot. The physician testified that the defendants never made any deal with him, but kept sending patients to him; that Mr. Thompson brought this injured employee to his office; that he examined the foot, found a fracture, and told Mr. Thompson that he (the physician) would have to take the man to a hospital to find out what was necessary to be done; that Mr. Thompson told him to do everything necessary; that he tried to reduce the fracture, had another physician try to do it, and then called in the plaintiff, to whom he turned over the case. The defendants knew nothing of the plaintiff's services until they received his bill for $360, and they never agreed to or ratified his employment. They refused to pay the bill. He sued them for $360 with interest, and the jury returned a verdict in his favor for $434.40. But the plaintiff had no contract, express or implied, with the defendants to perform the services; he was employed by the other physician, without authority, express or implied, from the defendants, to render these services, and the defendants were not liable for his compensation.

That the physician who called in the plaintiff was employed by the defendants to take care of the injured employee and "to do everything necessary," and "not to leave a stone unturned in attempting to save his foot," gave him no express or implied authority to employ the plaintiff to assist him, nor to turn the case over to the plaintiff and let him perform the operation and services at the expense of the defendants. He had no express authority to employ the plaintiff, and his employment to treat the injured employee and do all that was necessary gave him no implied authority to employ the plaintiff to do so at the expense of the defendants. The physician, in this employment to treat the injured employee, was an independent contractor without any control or suggestion by the defendants as to what he should do for the man, or how he should treat him. He was free to treat the case as he should choose, but he was not the agent of the defendants in so doing, and he was not their agent by this employment and contract.

Right to Show Feeling of Physician as Witness

(Central Lumber Co. v. Porter (Miss.), 103 So. R. 506)

The Supreme Court of Mississippi, Division B, says that on the trial of this personal injury case plaintiff Porter introduced as a witness his physician, who had formerly had a position with the defendant company and who it seemed had been displaced or removed from such position as the company's surgeon by the superintendent of the company. The physician was the only physician and surgeon who testified as to the extent and character of the plaintiff's injuries. The defendant attempted, on cross-examination, to interrogate the physician with reference to the state of his feeling toward the superintendent and the company. The physician was asked in how many cases he had testified in which the superintendent was concerned and his company was defendant; had not he himself sued the superintendent for $100,000, and did he not feel bitter toward him; was it not a fact that he had made application to the superintendent within a short time to be put back on this job, and been told that he could not have it; and was it not a fact that he was unfriendly toward the defendant company? The defendant insisted that it was error to refuse to permit it to propound these questions to the physician; that it had a right to interrogate him for the purpose of showing his feeling, bias, prejudice, etc. It was manifest from the record that the physician's testimony was highly important in determining the extent of the injury. Much would depend on his attitude as to fairness and his unbiased attitude in the case. The value to be given to testimony of this kind depends to a great extent on the attitude and fairness of the witness. The supreme court thinks that the questions should have been permitted, and that it was error for the court below to exclude them. It could not be said what effect this might have on the amount of the verdict. It was important on the measure of damages; wherefore the judgment in favor of the plaintiff is reversed as to the amount of the damages, and the case is remanded for a new trial as to damages alone.

Value of Last 10 Per Cent. of Vision

(Chicago Bridge & Iron Co v Industrial Commission et al (Ill), 147 N E R 375)

The Supreme Court of Illinois, in affirming a judgment which affirmed an award of compensation by the industrial commission, says that the award was for the loss of the sight of an eye by an employee of the company. It was admitted that the award would be correct if it were not for the fact that the employee had received compensation for the permanent loss of 90 per cent of the use of the same eye resulting from another injury, incurred three years before, while in the employ of the same company. The company contended that, because only 10 per cent of vision remained, its liability was limited to a payment for the loss of that fraction. The workmen's compensation act of Illinois provides that an employee shall receive "for the loss of the sight of an eye or for the permanent and complete loss of its use 50 per centum of the average weekly wage during 100 weeks." There is no requirement in the act that the eye be perfect, nor is there any provision for reducing the amount of compensation in the proportion the vision is defective The compensation fixed by the act is for the loss of a member of the body, and the same compensation is due and payable whether the eye lost is the eye of a youth or of an old man, an eye with perfect vision or one imperfect by reason of natural defects or a previous injury. The fact that the same employer has paid compensation to the injured employee for a loss arising out of another injury has no bearing on the amount of compensation to be paid for the loss arising out of this injury, and the same rule applies when the payments for the first injury were made by a different employer. A sightless eyeball is not an eye, as that term is used in the act, and an award for a disability caused by an injury which required the removal of a sightless eyeball would be made under paragraph (c) and not paragraph (e) of Section 8

It was conceded that the employee had at least 10 per cent of vision when he received his last injury, which necessitated the removal of the eyeball—that is, he could see with his defective eye at a distance of 20 feet what a person with normal vision could see at a distance of 200 feet. For many purposes this amount of vision was as useful to him as normal vision. It is impossible for any human agency to measure the value to an individual of the last 10 per cent. of vision remaining in his eyes. Whether the defect in vision is caused by disease or accident or is natural, the reduced amount of vision is all the vision the individual has, and when it is destroyed the use of his eye is destroyed. The legislature has fixed an arbitrary amount to be paid as compensation in such cases, and that amount is due and payable whenever a functioning eye is lost, though the eye may be infirm.

Failure to Protect Bandages Against Urination

(Lolli v. Gray (N. J), 128 Atl. R 256)

The Court of Errors and Appeals of New Jersey, in reversing a judgment which the plaintiff obtained for $5,000 for his daughter, aged 12 years, and for $360 in his own behalf for his expenditures in endeavoring to have his daughter cured of her ailment, says that the daughter fell over a stump and injured her left leg near the hip. She was taken to a hospital, and the defendant was called to attend her. He diagnosed the injury as a fractured femur and treated it accordingly. Several days after the operation, the patient involuntarily urinated one night and wet the bandages. Immediately thereafter the defendant redressed the wound, taking off the soiled bandages, putting on clean sterilized ones and using antiseptics. The case on the argument seemed to narrow down to the question of whether the defendant was negligent in not protecting the bandages on the injury with a rubber cloth to prevent infection from urination. However, as the child did not wet herself by urination but once, and that was twelve or fourteen days after she had been in the hospital, and several days after the operation, the defendant doubtless was not required to anticipate that she would do that thing. She was beyond the age when involuntary urination is apt to take place Furthermore, the defendant testified that there was a disadvantage in using rubber cloth over bandages. All the medical testimony, and that of the nurses, was that the defendant's treatment was in accordance with standard medical and surgical practice. The conclusion of the court is that the motion which was made for the direction of a verdict for the defendant should have been granted, and that its refusal was error. A physician and surgeon, in the absence of express contract, is required to exercise only the skill and care ordinarily possessed and exercised by others in the profession.

Liability for Injury Aggravated by Treatment

(Fright v Blakeslee et al. (Conn.), 128 Atl. R. 113)

The Supreme Court of Errors of Connecticut, in holding that the defendants had no reasonable ground of appeal from the denial of a motion to set aside a verdict that was rendered in favor of the plaintiff in this personal injury case, says that the defendants offered in evidence the complaint in an action by this plaintiff against a physician who treated her for the injury for which she here sued, in which complaint she alleged that the physician did not use due and proper skill and care in such treatment, the defendants contending that this tended to prove that the plaintiff's condition was due to the physician's negligence. The allegations were in the nature of admissions by the plaintiff, and hence an instruction was incorrect which excluded from the consideration of the jury the allegations made in such complaint against the physician. But it was not an error which could have prejudicially affected the defendants' case. If the jury found the defendants legally responsible for the accident to the plaintiff, they were responsible for the injuries proximately resulting therefrom to her. If she exercised reasonable care in selecting a physician to treat her, and his treatment added to the injuries resulting from the accident, the defendants would be liable for all such injuries from which she suffered as a result of his treatment which had not been materially contributed to by the plaintiff

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Society Proceedings

COMING MEETINGS

American Pharmacological Society, Cleveland, Dec. 28-31. Dr. E. D. Brown, University of Minnesota, Minneapolis, Minn , Secretary.
American Physiological Society, Cleveland, Dec 29-31. Dr. W J. Meek, Science Hall, Madison, Wis , Secretary.
American Society for Experimental Pathology, Cleveland, Dec. 28-30 Dr. F B Krumbhaar, Philadelphia General Hospital, Philadelphia, Sec'y.
American Society of Biological Chemistry, Cleveland, Dec 28 30. Dr. D W. Wilson, University of Pennsylvania School of Medicine, Philadelphia, Secretary
District of Columbia, Medical Society of, Washington, D. C , Dec. 2. Dr C B Conklin, 500 Medical Science Bldg , Washington, D C , Sec'y.
Federation of American Societies for Experimental Biology, Cleveland, Dec 29 31 Dr Walter J. Meek, Science Hall, Madison, Wis , Sec'y.
Philippine Islands Medical Association, Manila, Dec 16-19. Dr Isabelo Concepcion, College of Medicine and Surgery, Manila, Secretary
Porto Rico, Medical Association of, Coami, Dec. 14 15 Dr. R. M. Suarez, Box 314, Santurce, Secretary
Radiological Society of North America, Cleveland, Dec 7-11. Dr. Robert J May, St Luke's Hospital, Cleveland, Secretary.
Society of American Bacteriologists, Madison, Wis , Dec. 29 31. Dr. James M Sherman, Cornell University, Ithaca, N. Y., Secretary
Southern Surgical Association, Louisville, Ky., Dec. 15-17. Dr Hubert A Royster, 423 LaFayette Street, Raleigh, N C , Secretary.
Western Surgical Association, Wichita, Kan , Dec 18 19. Dr. Harry P. Ritchie, Lowry Building, St. Paul, Minn , Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Tropical Medicine, Baltimore

5: 319-384 (Sept.) 1925

Comparative Helminthology as Aid in Solution of Ethnologic Problems. S. T. Darling, New York.—p. 323.
*Amebic Abscess of Liver. W. J. MacNeal and P. Klemperer, New York.—p. 339.
Leprosy Problem in Philippine Islands. G. R. Callender, Washington, D. C.—p. 351.
Mosquito Repellents. C. W. O. Bunker and A. D. Hirschfelder, Minneapolis.—p. 359.

Amebic Abscess of Liver.—MacNeal and Klemperer present a case of amebic dysentery with complicating liver abscess and fatal termination, fairly typical in clinical history and course, unrecognized until the necropsy. The disease was apparently contracted in New York.

American Review of Tuberculosis, Baltimore

12: 1-86 (Sept.) 1925

*Symptoms of Intestinal Tuberculosis. R. J. Erickson, Trudeau, N. Y.—p. 1.
*Effect of Ultraviolet Light on Intestinal Tuberculosis. R. J. Erickson, Trudeau, N. Y.—p. 15.
*Healed Tuberculous Ulcers of Intestine and Calcium Chlorid Treatment. E. H. Roberts, Denver.—p. 29.
*Excretion of Specific Substances of Tubercle Bacilli in Urine. L. Dienes and J. Freund, Asheville, N. C.—p. 35.
Resistance of Specific Properties of Tubercle Bacillus to Sodium Hydroxid and Hydrochloric Acid. L. Dienes and E. W. Schoenheit, Asheville, N. C.—p. 41.
Potency of Watery Extract of Saprophytic Acid Fast Bacilli as Tuberculins and as Antigens in Complement Fixation. L. D. Scheff, Asheville, N. C.—p. 45.
*Studies in Tuberculosis. III. Clinical Significance of Constitutional Reactions Following Cutaneous Tuberculin Tests. F. Eberson, San Francisco.—p. 49.
*Molds in Sputum in Pulmonary Tuberculosis. M. E. Lapham, Highlands, N. C.—p. 64.
Resistance of Albino Rat to Infection with Tubercle Bacilli. G. G. Ornstein and M. M. Steinbach, New York.—p. 77.

Symptoms of Intestinal Tuberculosis.—The material analyzed by Erickson consisted of 100 positive cases, and for comparison forty cases of nontuberculous intestinal disease complicating pulmonary tuberculosis. In 59 per cent. of the positive cases this complication occurred by the end of the second year and in 81 per cent. by the end of the third year. A history of previous intestinal symptoms was present in 58 per cent., most common of which were chronic constipation and indigestion. Intestinal tuberculosis had an insidious onset in one third of the cases and a clearly defined onset in two thirds. Abdominal pain was present in 71 per cent. of the positive cases. It occurred most commonly after meals, was cramping in character, was localized in the right lower quadrant and was accompanied by intestinal gas. Diarrhea was present in 47 per cent. of the cases. It occurred at any time of the day but somewhat more frequently in the morning. Bleeding from the intestine occurred in a tenth of the cases, and was a highly suggestive symptom when proved not to be due to hemorrhoids. Nausea was present in 66 per cent. It occurred most frequently after meals, and was accompanied by vomiting in one half of the cases. General digestive disturbances were the most frequent initial symptom and were present eventually in 47 per cent. They were most varied in type, the most unusual being marked loss of appetite or aversion for food, distress after meals and "sour stomach." They thus began early and were persistent symptoms. Constipation was twice as frequent as an initial symptom, and also during the course of the disease, in the positive as in the negative cases. Alternation of constipation and diarrhea was present in 12 per cent. It had no special diagnostic significance. Constitutional symptoms out of proportion to the severity of the pulmonary disease were a highly suggestive feature in 17 per cent.

Effect of Ultraviolet Light on Intestinal Tuberculosis.—In a series of eighty-one cases of intestinal tuberculosis complicating pulmonary tuberculosis reviewed by Erickson, 85.2 per cent. had a favorable result following the use of ultraviolet light, as judged by entire relief or definite improvement in symptoms, and 14.8 per cent. had no result or an unfavorable one. Of these cases, 24.7 per cent. had entire relief of symptoms, 47 per cent. were very much improved, and 13.5 per cent. had definite though less improvement. This symptomatic cure or improvement has persisted in 85 per cent. of the sixty-nine cases for four months, in 50 per cent. for a year or so, and in 12 per cent. for from three to four years. Pain, nausea and vomiting seem to be most effectively relieved, diarrhea is more persistent, and general digestive disturbances are still more persistent. It thus seems that ultraviolet light ray treatment is of definite value for the relief of symptoms in intestinal tuberculosis.

Calcium Chlorid in Treatment of Tuberculous Intestinal Ulcers.—Roberts presents a case of healed ulcers in tuberculous intestine to emphasize the fact that calcium chlorid has a definite place in the treatment of tuberculous enteritis and the treatment in this case extended over a period of 102 weeks in all, consisting of weekly injections of 5 c.c. of the 5 per cent. solution intravenously. This is the second case of healed intestinal ulcers in a patient dying of pulmonary tuberculosis.

Specific Substances of Tubercle Bacilli.—All attempts made by Dienes and Freund to demonstrate the presence of substances possessing a tuberculin effect on tuberculous guinea-pigs, either in the urine of patients with extensive tuberculosis or in the urine of patients receiving during specific therapy considerable amounts of specific substances, were negative. No demonstrable amounts of the specific substances were present in the blood serum and urine of guinea-pigs killed by the injection of watery extract of tubercle bacilli. The specific substances were present in great amount in the urine of normal guinea-pigs injected with the same amount of watery extract. From these observations, and from general considerations concerning the fate of antigens in the sensitized body, it appears to be improbable that tuberculosis patients excrete substances having the biologic effects of tuberculin in amounts accessible to observation, and the skin test observed with the urine of patients cannot be interpreted as a specific reaction.

Constitutional Reactions Following Cutaneous Tuberculin Tests.—A series of forty-one cases was studied by Eberson from the standpoint of constitutional reactions following diagnostic cutaneous tuberculin tests. All of these patients had positive clinical histories, physical and roentgen-ray findings, and a definite history of exposure to tuberculosis. In 90 per cent. of the cases, constitutional reactions occurred after cutaneous tests with tuberculin. Local reactions were usually violent but not necessarily correlated with the intensity of the constitutional reaction. Focal reactions were observed in all cases with lymph node involvement and with tuberculosis of the bones, joints or intestine. In the absence of definite "adult" parenchymal tuberculosis, the constitutional reaction was correlated uniformly with clinical tuberculosis elsewhere in the body. Roentgenologic findings offered confirmatory evidence of the significance of a constitutional reaction in juvenile tuberculosis. All of these young patients had enlarged hilum lymph nodes; tracheobronchial lymph nodes were present in 64 per cent. and primary foci in 36 per cent. An analysis of typical cases in children and in adults suggests that a constitutional reaction means clinical tuberculosis, regardless of the roentgen-ray picture, when the roentgenologic diagnosis of a focal reaction is based solely on a change in the lung tissue. As an aid in the diagnosis of juvenile tuberculosis, it is suggested that the occurrence of a constitutional reaction following a tuberculin test (particularly when the cutaneous technic is used), and the eliciting of a suggestive clinical history warrants a positive diagnosis which points to clinically active disease in some focus-bone, joint, lymph node, intestine or hilum lymph nodes.

Molds in Tuberculous Sputum.—Lapham has found molds seemingly to be responsible for cough and other symptoms suggestive of pulmonary tuberculosis; therefore she feels that every case of tuberculosis should be studied just as much to recognize or exclude the presence of molds as that of tubercle bacilli.

Archives of Neurology and Psychiatry, Chicago

14: 435 580 (Oct) 1925

Nutrition and Nerves F Peterson, New York —p 435
*Cerebrospinal Fluid Pressure from Clinical Point of View J B Ayer, Boston —p 440
Trial by Jury J H Lloyd, Philadelphia —p 449
*Comparison of Gold Chlorid, Benzoin and Mastic Tests on Cerebrospinal Fluid J R Cockrill, Boston —p 455
*Effect of Organic Brain and Spinal Cord Changes on Subarachnoid Space, Choroid Plexus and Cerebrospinal Fluid G R Hassin, Chicago —p 468
Changes in Size and Relations of Lateral Ventricles in Tumors of Brain C A Elsberg and S Silbert, New York —p 489
Work and Workers of Philadelphia Neurological Society from 1914 to 1924 C K Mills, Philadelphia —p 502
Cerebrospinal Fluid Chlorids F Fremont Smith and M E Dailey Boston, Mass —p 509
Ventriculography, Analysis of 392 cases F C Grant, Philadelphia. —p 511

Cerebrospinal Fluid Pressure.—The technic and value of manometric study of the cerebrospinal fluid was studied by Ayer. He says that while initial pressure readings are often of real diagnostic value, increasing interest attaches to the behavior of fluid pressure under the influence of certain physiologic acts, especially when pressure observations include more than one portion of the ventriculosubarachnoid system In this manner pressure studies form the basis of an understanding of the dynamic physiology of the fluid circulation

Tests on Cerebrospinal Fluid.—Four hundred colloidal—gold, benzoin and mastic—tests made by Cockrill show sixteen dissimilar reactions and 384 similar reactions in all three tests. Comparing the colloidal benzoin and mastic with the colloidal gold, the results indicate that the benzoin and mastic are reliable tests of approximately equal value. The technic of the benzoin is simpler This indicates that the benzoin is the colloidal test to use in the routine examination of cerebrospinal fluid In special cases, such as meningitis, and multiple sclerosis, requiring the original benzoin test of sixteen tubes, the colloidal gold is preferable

Source of Cerebrospinal Fluid.—The secretion theory of the cerebrospinal fluid holds that this body fluid is largely elaborated by the choroid plexus The excretion or absorption theory, in contrast, holds that the fluid comes from the tissue fluids of the brain The secretion theory is mainly based on experimental and anatomic data, which may equally well be explained by the excretion theory. The latter renders understandable the changes in the subarachnoid spaces and choroid plexus in various lesions of the brain or cord As the secretion theory does not explain the relationship between the brain and subarachnoid changes, Hassin says, it must be assumed that the cerebrospinal fluid is produced by the brain tissues themselves, the villi of the choroid, like those of the arachnoid, being organs, not of secretion, but of excretion or absorption of the waste from the spinal fluid

Archives of Otolaryngology, Chicago

2: 321 416 (Oct) 1925

Local Immunization of Tissues of Nose, Throat and Ear by Bacterial Vaccines H M Hays, New York —p 321
Audion Bulb Circuits in Otologic Practice I. H Jones and V O Knudsen, Los Angeles —p 335
Means and Methods of Testing in Aural Disease R Lake, London, England —p 340
Endoscopy as Aid to General Diagnosis in Diseases of Throat and Thorax E A Looper, Baltimore —p 350.
Choked Disks, in Association with Surgical Mastoid Disease Without Apparent Intradural Involvement H I Lillie, and W. I Lillie, Rochester, Minn —p 355
*Bacteremia Due to Tonsillectomy Complicated by Mastoiditis V. Dabney, Washington, D C —p 362
Spontaneous Nystagmus B F Glowacki, Detroit —p 365
*Papilledema of Otitic Origin L E White, Boston —p 371
Acute and Chronic Suppurative Otitis Media Including Acute Infection of Blood Stream S J Kopetzky, New York —p 379

Bacteremia Due to Tonsillectomy.—Dabney reports a case which presented every classical symptom of a sinus thrombosis in pronounced degree (temperature range of 97 2 to 104.4 F., chills, sweats, otorrhea, history of recurrent earache, bacteremia), and yet there was no such condition. On the other hand, a mastoidectomy was definitely indicated and justified in the light of the pathologic changes found in the bone at operation.

Papilledema as Diagnostic Aid.—White shows that when present in meningitis, brain abscess and lateral sinus infection, papilledema is a valuable diagnostic aid but its absence does not exclude intracranial involvement. There was papilledema in 58 per cent. of the cerebellar abscesses, in 60 per cent. of the temporosphenoidal abscesses, in 44 per cent. of the meningitis cases and in 40 per cent. of the lateral sinus infections The fundi were normal in 50 per cent. of the meningitis cases with spinal fluid under pressure. Streptococci were the only bacteria present in the cases with papilledema As a preliminary to a lumbar puncture on a patient with marked papilledema, the intracranial pressure should be lowered by drainage of the lateral ventricle. Increasing edema of the optic nerve is usually an unfavorable symptom

Atlantic Medical Journal, Harrisburg, Pa.

29: 1-52 (Oct.) 1925

Medical Society of State of Pennsylvania; Its Past and Future I G. Shoemaker, Reading, Pa —p. 1
*Infarction of Myocardium F A. Willius, Rochester, Minn —p 9
Mental Clinics W C Sandy, Harrisburg, Pa.—p 13.
Newer Methods of Determining the Employer's Liability in Eye Injuries. G H Shuman, Pittsburgh —p 16
Oral Surgical Prosthesis A B Vastine, Danville, Pa —p. 18
*Suppurative Orchitis and Embryonal Adenocarcinoma W. H. Haines and N Mumey, Philadelphia —p. 19.

Infarction of Myocardium.—Two cases of acute coronary obstruction are reported by Willius in which recovery occurred, and in which detailed electrocardiographic study was carried on from the time of the occlusion throughout the period of convalescence.

Suppurative Orchitis.—A résumé of the case reported by Haines and Mumey would suggest that the condition began after an infectious orchitis, following influenza. Its rapid onset and insidious character, accompanied by a suppurative process, made the diagnosis a difficult task, which, after all, did not interfere with the speedy removal of a very malignant tumor three and one half weeks from the time of discovery. The patient is in good health, and there has been no recurrence eighteen months after operation.

Boston Medical and Surgical Journal

193: 659 704 (Oct 8) 1925

*Treatment of Scarlet Fever with Antitoxin F. G Blake and J D. Trask, New Haven, Conn —p 659
Surgery of Carcinoma of Stomach F. B Lund, Boston —p 666
Congenital Syphilis as Cause of Mental Deficiency, I. Statistics N A. Dayton, Wrentham, Mass —p 668
*Id II Analysis of Cases N A Dayton, Wrentham, Mass —p 671.
Use of Sodium Tetraiodophenolphthalein in Cholecystography R R. Wheeler and I K Bogan, Boston —p 676
How Adequately Can Social Service Solve Community Care of Feebleminded? H M Watkins, Boston —p. 678

Treatment of Scarlet Fever with Antitoxin.—Blake and Trask conclude from their experience that scarlatinal antitoxin in proper amount is a specific and prompt cure for uncomplicated scarlet fever. It indirectly benefits septic complications during the acute stage of scarlet fever, presumably by curing the specific toxemia. It has not been possible to demonstrate that it possesses any therapeutic value in postscarlatinal sepsis after the rash has faded. To be therapeutically efficient in reasonable dosage, an antiscarlatinal serum should contain at least 12,500 minimal blanching doses of antitoxin per cubic centimeter or be able to neutralize at least 10,000 skin test doses of toxin per cubic centimeter. The amount of antitoxin required to cure scarlet fever promptly and with certainty by intramuscular injection varies from 3,000 units to 12,000 units (30 to 120 c c. of a serum which neutralizes 10,000 skin test doses of toxin per cubic centimeter) depending on the size of the patient and the severity of the disease. To obtain the best therapeutic results, the full amount of antitoxin required in each case should be estimated and given at once as soon as diagnosis is made.

Congenital Syphilis as Cause of Mental Deficiency.—A review made by Dayton of 9,183 patients with mental defect given the Wassermann test, revealed 497 with a positive reaction, a percentage of 5.4 supposedly due to syphilis. A review of 16,156 cases of nondefective children given the Wassermann test revealed 699 with a positive reaction, or 4.3 per cent. In the 1756 cases at the Wrentham State School tested by the same means, sixty, or 3.4 per cent., reacted positively. From these statistics it would appear that congenital syphilis is not of great importance as a causative factor in mental deficiency.

193: 707-756 (Oct. 15) 1925

*Reduction of Death Rate from Diabetes Particularly from Diabetic Coma in Massachusetts. E. P. Joslin, Boston.—p. 707.
*Glucose Infusions and Insulin in Preparation of Poor Surgical Risks. D. Fisher and E. H. Mensing, Milwaukee.—p. 712.
Surgery of Abdominal Hernia. W. Van Hook, Chicago.—p. 714.
*Appendiceal Lithiasis; Case. V. Vermooten, New Haven, Conn.—p. 718.
*Acute Appendicitis During Labor; Operation; Recovery. D. N. Barber and J. R. Miller, Hartford, Conn.—p. 720.
Relation of Clean Milk to Progress in Infant Feeding. J. L. Morse, Boston.—p. 721.
Blood Transfusion. E. A. Herr.—p. 723.
*Vitamin Potency of Cod Liver Oils. VXII. Salmon Body Oil. A. D. Holmes and M. G. Pigott, Boston.—p. 726.
Special Periosteotomes for Cleft Palate Work. B. B. Cates.—p. 728.
Mental Wounds. C. A. Bonner.—p. 729.

Coma in Diabetes.—Coma is the chief cause of death in diabetes in Massachusetts, Joslin says. It occurs so frequently and yet can be so successfully treated that the number of coma deaths should be greatly reduced. Cardiorenal complications stand next to coma in importance. Tuberculosis still claims a certain percentage of the deaths, probably about 6 per cent., but no more than the standard rate for tuberculosis in the community at large. The onset of tuberculosis is usually unsuspected, so slight are the symptoms and insignificant the signs. Deaths from carbuncles are pathetic. Most fatalities could be avoided with early energetic treatment carried out in a hospital by surgeons who will work in close conjunction with physicians. The mortality is distressing in cases treated at the office and in neglected cases. Crucial incisions must reach to the sound tissue, the flaps should be turned up and the necrotic tissue scarified repeatedly so that after a few days of packing with poultices of normal saline solution sloughing can easily ensue. Ultraviolet rays help in the convalescence.

Glucose and Insulin in Preparation of Poor Surgical Risks.—Fisher and Mensing cite two cases. One of these shows how a severe preoperative acidosis requiring immediate surgery was quickly transformed into a good risk by the use of glucose infusions and insulin. The second case is a typical example of the preoperative preparation of a patient in shock.

Appendical Lithiasis.—In Vermooten's case the appendix contained four calculi, composed largely of calcium phosphate but containing small quantities of cholesterol, some silica and a trace of bile pigment.

Acute Appendicitis During Labor.—The case cited by Barber and Miller was one of mild but definite acute appendicitis occurring at the onset of labor in which a routine appendectomy, followed by breech extraction under ether, gave very satisfactory results.

Vitamin Potency of Salmon Oil.—It is evident from the results obtained by Holmes and Pigott that the vitamin A potency of the salmon body oil is not comparable with that of medicinal cod liver oil made by the steam process.

Georgia Medical Association Journal, Atlanta

10: 399-440 (Oct.) 1925

Problems of Pathology of Biliary Tract. W. H. Lewis, Rome.—p. 399.
Alkalosis Acidosis; Cases. J. W. Daniel, Savannah.—p. 404.
Pellagra; Treatment. L. L. Whiddon, Ocilla.—p. 409.
Hemorrhage in Pulmonary Tuberculosis. C. H. Holmes, Atlanta.—p. 414.

Illinois Medical Journal, Oak Park

48: 253-336 (Oct.) 1925

Practical Application of Radiation Therapy in Conjunction with Surgery. B. C. Cushway, Chicago.—p. 264.
Epidermophytosis. C. J. White and A. M. Greenwood, Boston.—p. 269.
County Society and County Secretary's Relation to State Secretary. W. D. Chapman, Silvis.—p. 278.
Relation of Psychotic and Neurotic Disturbances to Head Injuries. G. W. Hall, Chicago.—p. 279.
Sources of Infection. Cases and Carriers. D. M. Griswold, Iowa City. —p. 286.
Prevention of Goiter. E. P. Sloan, Bloomington.—p. 290.
Diabetes Mellitus Since the Advent of Insulin. G. Parker, Peoria.—p. 293.
Surgical Treatment of Pulmonary Suppuration. R. B. Bettman, Chicago. —p. 297.
Public Health and Medical Profession. W. S. Keister, Decatur.—p. 300.
Adjustable Splint for Fractures of Nose. S. Salinger, Chicago.—p. 304.
*Prevalence of Goiter in Illinois. J. H. Beard, Urbana.—p. 306.
Plastic Induration of Penis and of Corpus Cavernosum: Case. W. A. Marshall, Chicago.—p. 311.
Head Injuries. H. R. Kenny, Chicago.—p. 313.
Systemic Aspects of Achylia Gastrica. L. Crummer, Omaha.—p. 317.
Traumatism of Head and Brain in Civil Practice. G. M. Hackler, Dallas, Texas.—p. 322.
Treatment of Burns. B. E. Sayre, Chicago.—p. 325.
Clinical Ramifications of Throat Infections in Children. G. L. Kaufmann, Chicago.—p. 327.
Lung Abscess. B. Chapman, Chicago.—p. 330.

Prevalence of Goiter in Illinois.—On the basis of 15,154 physical examinations of which 10,829 were men and 4,325 were women high school graduates distributed over Illinois, it was found by Beard that the mean average of thyroid enlargement of the women for a five year period was 24.5 per cent.; the men, 4.6 per cent. The attempt is made to indicate the prevalence of endemic goiter in Illinois. The statistics presented are based on the work of forty or more well trained doctors, experienced in the making of physical examinations. Simple goiter is very common among boys and girls of high school age in Illinois. Approximately 5 per cent. of the former and 25 per cent. of the latter have some hypertrophy of the thyroid gland. In Illinois, the incidence of goiter tends to decrease from the north southward and from the east westward. In this state there seems to be some tendency for goiter prevalence and population density to show coincident rise and fall. There is not much difference in the prevalence of goiter in rural and urban sections. Although the greatest population density is in the northern part of the state, the section with the highest goiter incidence, fewer women in the city than in the country have goiter. This fact, taken in connection with the decrease in thyroid enlargement in both men and women in the tier of counties containing Cook County, may be an expression of food variation, greater accessibility to sea food, and better medical attention to be found in cities. In the comparison of the occurrence of goiter in men and in women in the city and in the country, it is not apparent why, in each instance, the prevalence in men should be the reverse of that in women, who are peculiarly susceptible to iodin deficiency. There may be some dietetic difference not evident.

Indiana State Medical Association Journal, Ft. Wayne

18: 375-406 (Oct. 15) 1925

Indiana State Medical Association. E. M. Shanklin, Hammond.—p. 375.
Otalgia. C. N. Howard, Warsaw.—p. 378.
Cancer of Sigmoid. J. Y. Welborn, Evansville.—p. 380.
Fatigue as Factor in Disease. D. O. Kearby, Indianapolis.—p. 382.

Iowa State Medical Society Journal, Des Moines

15: 519-572 (Oct. 10) 1925

Pioneers in Preventive Medicine. J. McIntosh Wright, Clear Lake.—p. 519.
Branchial Cysts; Case. I. N. Crow, Fairfield.—p. 524.
Laryngeal Tuberculosis. C. C. Jones, Des Moines.—p. 529.
Foreign Bodies in Air and Food Passages; 43 Cases. T. R. Gittins, Sioux City.—p. 532.
Study of Nervous System with View to Understanding Otitic Pain. C. B. Taylor, Ottumwa.—p. 537.
Diatheramy in Types of Faulty Hearing. E. G. Linn, Des Moines.—p. 540.
Classification of Cardiac Diagnosis. M. M. Myers, Des Moines, and P. D. White, Boston.—p. 542.
Goiter. W. I. Terry, San Francisco.—p. 544.
Infection, Its Relation to General and Local Diseases. C. H. Mayo, Rochester, Minn.—p. 546.

Functions of Skin and Their Relation to General Medicine. E. F. Muller, New York—p 548

Intestinal Protozoa and Chronic Diseases, Chronic Arthritis. J. V. Barrow and E L Armstrong, Los Angeles—p 553

Why Do We Have Hemorrhoids? C. J Drueck, Chicago.—p 558.

Osteomyelitis of Mandible. R A Fenton, Iowa City—p 560.

Journal of Bacteriology, Baltimore

10: 413 502 (Sept) 1925

*Clostridium Multifermentans in Chocolate Cream Candies. G. A Hill, Camp Kearny, Calif—p 413

Relation of Temperature to Growth of Thermophilic Bacteria F. W. Tanner and G I Wallace, Urbana, Ill—p 421.

Hydrogen Sulphid Production by Anaerobic Spore Bearing Bacteria. M C. Kahn, New York—p 439

Further Clinical Characteristics Differentiating B Chauvoei from Other Anaerobes A S Schlingman and A W Haines, Detroit—p 449

Indol Studies W. L Kulp, New Haven, Conn—p 459

Bacterial Variation. J Orskov and A Larsen, Copenhagen—p 473

Microbic Heredity I Primitive Form of Sexuality (Zygospore Formation) in Colon Typhoid Group R R Mellon, Rochester, N Y—p 481

Clostridium in Chocolate Candy.—Hill presents a description of a saccharolytic anaerobe which was found to be uniformly present in cracked chocolate creams It would seem probable that most of the spoilage of chocolate creams through splitting is due to a gas-forming micro-organism whose morphology and cultural characteristics correspond to those of *Clostridium multifermentans* (Stoddard).

Journal of Biological Chemistry, Baltimore

65: 279 554 (Sept) 1925

Preparation, Solubility and Specific Rotation of Wheat Gliadin D B Dill and C L Alsberg, Stanford University, Calif—p 279

Studies in Carbohydrate Metabolism II Investigations Into Mutarotation of β Glucose Under Various Conditions C Lundsgaard and S A Holbøll, Copenhagen, Denmark—p 305

Id III Investigations Into Nature of Glucose in Blood of Normal Individuals C Lundsgaard and S A Holbøll, Copenhagen, Denmark—p 323

*Id IV Investigations Into Nature of Glucose in Blood of Patients with Diabetes Mellitus and Patients with Benign Glycosuria C Lundsgaard and S A Holbøll, Copenhagen, Denmark—p 343

Id V Investigations Into Form of Glucose in Different Body Fluids. C Lundsgaard and S A Holbøll, Copenhagen, Denmark—p 363

Electrodialysis of Agar. Method for Preparation of Free Agar Acid W. F. Hoffman and R A Gortner, Minneapolis—p 371

Studies of Acidosis XXI Colorimetric Determination of pH of Urine A B Hastings, J Sendroy, Jr, and W Robson, New York—p 381

*More Specific Reagent for Determination of Sugar in Urine J B Sumner, Ithaca, N Y—p 393

*Carbohydrate Metabolism of Tumors II Changes in Sugar, Lactic Acid and Carbon Dioxid Combining Power of Blood Passing Through Tumor C F Cori and G T Cori, Buffalo—p 397.

Blood as Physicochemical System III Deductions Concerning Capillary Exchange L J Henderson and C D. Murray, Névache, France—p 407

Oxygen Exchange, Blood, and Circulation Coordinated Treatment of Factors Involved in Oxygen Supply on Basis of Diffusion Theory C D Murray and W O P Morgan, Cambridge, England—p. 419

Effect of Variation in Ionic Strength on Apparent First and Second Dissociation Constants of Carbonic Acid A B Hastings and J. Sendroy, Jr., New York.—p 445

Vitamin B in Excreta of Rats on Diet Low in this Factor W D Salmon, Auburn, Ala—p 457

Synthetic Nucleosids I Theophylline Pentosids P A Levene and H. Sobotka, New York—p 463

Id Substituted Uracil Xylosids P L. Levene and H Sobotka, New York—p 469

Chemical Findings in Blood of Normal Dog R. L Haden and T G Orr, Kansas City, Kan—p 479

Concentration of Vitamin B II P A. Levene and B J C Van der Hoeven, New York—p 483

Strophanthin VIII Carbonyl Group of Strophanthidin. W A Jacobs and A M. Collins New York—p 491

Substitution by Halogen of Hydroxyl in Secondary Alcohols P A. Levene and L A Mikeska, New York—p 507

Oxidation of Secondary Mercaptans Into Corresponding Sulphonic Acids P A Levene and L A Mikeska, New York—p. 515

Dissociation Constants of Plant Nucleotids and Nucleosids and Their Relation to Nucleic Acid Structure. P A Levene and H S Simms, New York—p 519

Numerical Values of Optical Rotation of Methylated Gluconic Acids and Their Salts. P. A. Levene and G. M. Meyer, New York.—p 535

Bromolecithins Fractionation of Brominated Soy Bean Lecithins. P. A Levene and I P Rolf, New York—p 545

Thio-Sugar from Yeast P A. Levene and H. Sobotka, New York.—p 551.

Nature of Blood Glucose in Diabetes and Glycosuria.—Out of eleven examinations made by Lundsgaard and Holbøll on ten patients with severe or moderately severe diabetes mellitus, new glucose could not be detected in the blood in nine. This substance, however, was found in two patients at the conclusion of the treatment. In five of the patients in whose blood new glucose could not be detected, it was present in the blood two hours after the administration of insulin. In two patients with benign glycosuria, new glucose was found in the blood. In all the patients in whom new glucose was detected in the blood, a removal of glucose from the blood stream could at the same time be demonstrated during its passage through the capillaries, while this was not the case in diabetics where new glucose could not be detected in the blood. The authors, therefore, assume that new glucose is an essential link in normal carbohydrate metabolism and probably first, and that insulin exerts its action in the organism in conjunction with a substance always or usually present in the muscles, by transforming α, β-glucose into new glucose which can then be further broken down in the organism

Determination of Sugar in Urine.—Sumner now prepares his dinitrosalicylic reagent by adding to it both phenol and sodium bisulphite and asserts that it is exceedingly delicate in its action.

Carbohydrate Metabolism of Tumors.—On comparing the sugar and lactic acid contents and the carbon dioxid combining power of the plasma of blood drawn from the right and left wing vein of normal chickens, identical values were obtained by the Coris. If a tumor was growing on one wing, the blood that had passed through the tumor contained, as an average, 23 mg less of sugar and 16.2 mg. more of lactic acid than the blood that had passed through the tissue of the normal wing. The plasma obtained from the blood of the tumor side showed on saturation with alveolar air 3.7 volumes per cent. less of carbon dioxid than that of the normal side The plasma of blood that had been collected under oil contained as an average only 0.7 volume per cent. less of carbon dioxid when compared with that of the normal side.

Journal of Experimental Medicine, Baltimore

42: 431-592 (Oct 1) 1925

*Effect of Operative Interference with Cervical Sympathetic Nervous System on Growth and Malignancy of Transplantable Neoplasm of Rabbit L Pearce and C. M Van Allen, New York—p 431.

Comparative Studies of Action on Pneumococcus of Bile Acids and Unsaturated Fatty Acids, Found in Bile in Form of Soaps. A. Kozlowski, Albany, N Y—p 453

*Local Immunization of Rabbits to Cutaneous Infecton with Staphylococcus Aureus R B Mallory and A. Marble, Boston.—p. 465

Biology of Bacterium Lepisepticum II. Structure of Iron Compounds Which Influence Growth of Certain Bacteria of Hemophilic, Anaerobic and Hemorrhagic Septicemia Groups L T. Webster and O. Baudisch, New York—p. 473.

*Bacteriophage of D'Herelle III Some Factors Determining Number and Size of Plaques of Bacterial Lysis on Agar. J. J. Bronfenbrenner and C Korb, New York—p 483

*Experimental Rickets in Rabbits H. Goldblatt and A R. Moritz, Cleveland—p 499

Regeneration of Bacteriophage I Influence of Partial Anaerobiosis on Regeneration of Highly Diluted Lytic Principle. G Shwartzman, New York—p 507.

Production of Persistent Alopecia in Rabbits by Roentgen Rays of Various Degrees of Hardness H Clark and E Sturm, New York—p 517.

Growth and Persistence of Filterable Viruses in Transplantable Rabbit Neoplasm T M Rivers and L Pearce, New York—p 523

*Experimental Studies with Spiral Organism Found in Wild Rat and Identical with Organism Causing Rat Bite Fever. H Mooser, Mexico City, Mex.—p. 539.

Bacteriophage Tests on Meconium of Aborted Fetuses E S. Sanderson, Princeton, N J—p 561

Relationship of Chemical Constituents of Blood and Cerebrospinal Fluid. L S Kubie and G M Shults, Baltimore—p 565

Effect of Operations on Cervical Sympathetic.—The effect of the removal of the complete cervical sympathetic nervous system of both superior and of both inferior cervical ganglions and a small portion of the cervical sympathetic nerve in the rabbit was studied by Pearce and Van Allen in relation to the character of a malignant disease induced by a transplantable neoplasm. It was found that the general character of the disease which developed in the groups of animals in which operation was done was more severe than that of a similar sized control group Comparisons of the mortality rate in the several groups, of the animal incidence of metastases, the number of metastatic foci, and the distribution of these secondary growths all showed this to be the case There appeared, furthermore, to be differences in malignancy among the groups themselves in which operation was performed The more severe disease occurred in the group in which a portion of the sympathetic nerve only was removed (sympathotomy), that in the complete sympathectomy and superior sympathectomy groups was slightly less malignant, and that in the inferior group was much less so These results have been interpreted as due to a less effective animal resistance the mechanism of which has been interfered with in some way by the interference with the sympathetic nerves The reasons for the difference in malignancy exhibited by the several groups in which operation was done are undetermined A tentative explanation is suggested on the basis of coordinating favorable or deleterious functions subserved by the cervical sympathetic nervous system

Local Immunization to Cutaneous Infection.—Bacterial filtrates were prepared by Mallory and Marble by the methods described by Besredka, but these never developed any specific growth-inhibiting factors Such filtrates produced a strictly local immunity of the areas of the skin infiltrated, but such protection was never greater than that produced with the broth from which they were prepared This immunity was manifest within eight hours and persisted at least fifteen days Transcutaneous treatment by moist dressings soaked in either filtrate or broth were entirely ineffective Sites of healed cutaneous lesions show a strictly local and nonspecific immunity for a period of from five to six weeks Repeated intracutaneous infection with virulent staphylococci failed to produce a general cutaneous immunity

Distribution of Lytic Principle—The experiments reported on by Bronfenbrenner and Korb confirm the fact that lytic principle is distributed in active solution in a state of indivisible units This permits its quantitative evalution by serial dilution, as well as by plating on agar

Experimental Rickets—Rickets has been produced experimentally in rabbits by Goldblatt and Moritz by the administration of diets deficient in the antirachitic organic factor and phosphorus but with a high calcium content Cod liver oil added to these rickets producing diets prevented the development of rickets in rabbits

Spiral Organisms of Rats and Rat-Bite Fever—The spiral organism isolated from a wild rat has proved identical with that from a human case of rat-bite fever in Mexico City studied by Mooser Rabbits can easily be infected with these organisms The subcutaneous inoculation of them is followed after from three to five days by a local edema, induration and inflammation—primary lesion About eight days after the appearance of the primary lesion, edematous swellings and inflammation appear on the head and genitals—secondary lesions The organism can be transmitted from rabbit to rabbit by coitus Protective antibodies are to be found in the blood of infected rabbits at a time when the local lesions are still active The peculiar character of certain of the lesions is probably due to the escape of the antibodies from the blood stream The organism belongs to the genus Treponema

Journal of Radiology, Omaha

6: 347 387 (Sept) 1925

International Association of University Lectures of Radiology M Haudek, G Holzknecht, R Kienbock and E Weber Vienna —p 347
Diseases Originating at Gum Margin W L Shearer and A F Tyler, Omaha —p 352
Modifications Which Have Been Wrought on Treatment of Pulmonary Tuberculosis During Last Twenty Five Years J D Gibson Denver —p 354
Ethical Position of Physiotherapist M J Breuer Lincoln —p 357
Diathermy in Gynecology, Vaginal Electrode W B Chapman, Carthage, Mo —p 361
Thrombo Angiitis Obliterans of Hand C L Hustead, Falls City, Neb —p 367

Kansas Medical Society Journal, Topeka

25: 283 318 (Sept) 1925

Eugenics B F Morgan, Clay Center —p 283
Vomiting in Pregnancy M W Hall, Wichita —p 288
Diabetes Insipidus H Marchbanks, Pittsburgh —p 291

New York State Journal of Medicine, New York

25 921 952 (Oct 1) 1925

*Prevention in Pediatric Practice J H M Knox, Jr , Baltimore —p 921
*Mental Hygiene of Child, Relation to Medicine D A Thom, Boston —p 924
Mental Hygiene of Child, Relation to Development of Character I S Wile, New York —p 926
Surgical Aspect of Nasal Ganglion S L Ruskin New York —p 929
Newspaper as Aid in Public Health Work L F Schiff, Plattsburg —p 935

Prevention in Pediatrics—Whether the health of school children is a primary responsibility of the school commissioners or the health department, whether these children shall be called school children or children of school age, is still debatable, but in any case, says Knox, all matters pertaining to the health of children in schools should be directed by a physician interested and skilled in this field of work He should pass on the construction of the building, the air space, ventilation, lighting, washroom and toilet facilities, the type of desks and seats, blackboards and lockers, the school lunches and other arrangements that have to do with the hygiene of the school life Competent medical authority should supervise the instruction in health given to all grades and advise as to school hours, rest periods and the recreation of the children In cooperation with the teacher, the nurse or physician should arrange for the daily inspection and occasional examination of the children and direct the precautions to be taken to prevent the spread of communicable disease, and with the family physician should advise as to the care of the malnourished or otherwise physically handicapped child

Mental Hygiene of Child—Thom believes that the mental health of the child just as the physical health is to a very large degree in the hands of the general practitioner, and not the specialist, and in assuming the responsibility he should utilize as one of his important instruments the knowledge which has gradually been collected under the subject of mental hygiene

25: 953 982 (Oct 15) 1925

*Therapeutic Value of Oxygen in Pneumonia C A L Binger, New York —p 953
Importance and Technic of Palpation of Female Pelvic Ureters D W Tovey New York —p 958
Diagnostic Curettage in So Called Idiopathic Uterine Bleeding E Novak, Baltimore —p 961
Idiopathic Uterine Bleeding from Clinical Standpoint W P Healy, New York —p 964
Treatment of Fractures of Neck of Femur W C White, New York —p 966

Value of Oxygen in Pneumonia.—While Binger does not regard oxygen therapy as being specific in these cases, he believes that it removes one of the obstacles which a sick patient must surmount on his road to recovery, and when it is properly given one may look usually for improvement in cyanosis, improvement in the patient's psyche, slight reduction in his pulse rate, and at times in his rate of respirations This may be just sufficient to tide the patient over his critical days until he has established a sufficient immunity to handle his infection, often, to be sure, it may simply prolong his life by a few days when the bacterial infection is such as to overwhelm him

Ohio State Medical Journal, Columbus

21 713 776 (Oct 1) 1925

Cancer of Stomach C A Hyer, Columbus —p 717
Cavernous Angioma of Eyelid and Lymphangioma of Bulbar Conjunctiva V Ray, Cincinnati —p 720
Neurosyphilis in Cleveland State Hospital During 1919 1923 G H Williams Cleveland —p 722
Physiotherapy in Relation to Surgical Conditions L M Otis, Celina —p 725
Care and Feeding of New Born Baby T J Glenn, Cincinnati —p 728
Congenital Dislocation of Hip G N Morrill, Cleveland —p 730
Posture J J Sutter, Lima —p 734

Philippine Journal of Science, Manila

28. 1 172 (Sept) 1925

Intestinal Nodules in Chickens Due to Heterakid Larvae (Heterakis Beramporia Lane) B Schwartz —p 1
Metazoan Parasites of Philippine Domesticated Animals M. A Tubangui —p 11
Psyllidae D L Crawford —p 39

New Species of Sambus from Manila (Coleoptera; Buprestidae). W. S. Fisher.—p. 45.
Ants of Philippine Islands W. M. Wheeler and J. W. Chapman—p. 47
Japanese Lepidoptera and Their Larvae. VIII. A E. Wileman—p. 75.
Tenebrionides (Coleoptera) of Indo-Malay. VIII. Anisocara, Spiloscapha, Menimus, Labidocera, und Pentaphyllus. H. Gebien—p. 101.
Cricket-Locusts (Gryllacridae), Chiefly from Philippine Islands. H. H Karny.—p 131.

Southwestern Medicine, Phoenix, Ariz.

9: 377 414 (Oct 3) 1925

Treatment of Mental Illness. K A Menninger, Topeka, Kan—p 377.
Mental Hygiene—Dementia Praecox C. W. Thompson, Pueblo, Colo—p 386.
Operative and Postoperative Complications of Subtotal Thyroidectomy A P Heineck, Chicago—p 390
Diagnosis and Treatment of Tuberculosis of Middle Ear. H. Yandell, Phoenix, Ariz—p 394
Syphilitic Interstitial Keratitis. R. A. Hernandez, Tucson, Ariz—p 396

Surgery, Gynecology and Obstetrics, Chicago

41: 399 556 (Oct) 1925

*Teratomata, Ovarian and Retroperitoneal O. A Gordon, Brooklyn—p 399
Calcareous Deposits of So Called Calcifying Subacromial Bursitis J. B. Carnett, Philadelphia—p 404
*Chronic Pancreatitis J W Hinton, New York—p 422
*Manometric Study of Cerebrospinal Fluid in Suspected Spinal Cord Tumors. B. Stookey, H R Merwarth and A. M. Frantz, New York.—p 429
Radiation Therapy in Deep Seated Malignant Disease G E Pfahler, Philadelphia—p 443.
Osteoarthritic Protrusion of Acetabulum. P Lewin, Chicago—p 449
*Deltoid Paralysis Following Shoulder Injuries. J. F Smith and H H. Christensen, Wausau, Wis—p 451
*Diabetic and Nondiabetic Glycosuria in Surgical Patient W C Menninger, Topeka, Kan—p 454
Benign Tumors of Stomach E L. Eliason and V. W. M Wright, Philadelphia—p 461.
Consideration of Cervix Uteri from Standpoint of Its Sphincter Properties E M Blair, Vancouver, B C—p 473
Sarcoma of Uterus Case J C Bunten, Augusta, Kan—p 477
Osteitis Fibrosa Cystica J N Sisk, Madison, Wis—p 481
Systemic Blastomycosis C. C Garr, Lexington, Ky—p 490
Combined Satchel Handle or Tubed Pedicle and Large Delayed Whole Skin Pedicle Flaps in Case of Plastic Surgery of Face, Neck and Chest B. F. Alden, San Francisco—p 493
Three Stage Operation for Radical Resection of Colon for Cancer. J. G. Montgomery, Kansas City, Mo—p 497.
Cesarean Section After Test of Labor H. M Armitage, Chester, Pa.—p 502
*Round Ligament Operation for Surgical Cure of Uterine Displacement in Selected Cases G L Carrington, Durham, N. C—p 507
Oblique Gastroduodenostomy in Treatment of Ulcers of Duodenum and Stomach, and Cancer of Pylorus A L Soresi, New York—p 509.
Arthroplasty Splint. P M. Jepson, Rochester, Minn—p 512
Blood Transfusion to Date E A. Herr, Waterbury, Conn—p 513

Teratomas, Ovarian and Retroperitoneal.—Gordon holds that the term dermoid, as applied to ovarian neoplasms, is inaccurate. So-called ovarian dermoids should be referred to as cystic ovarian teratomas. The histogenesis of ovarian teratomas is highly speculative. There are two seriously considered theories as to their origin, one the so-called blastomere theory of Marchand and Bonnet, and the other the germ cell theory of Wilms. Cystic teratomas or dermoids are one of the commonest ovarian neoplasms. In a series of 125 ovarian tumors at Bellevue Hospital, they comprise 8 per cent. of the cases. Bilateral cystic teratomas are comparatively common, occurring in from 2 to 14 per cent. of the cases. Malignant changes in cystic teratomas are rare, the most frequent type being squamous cell carcinoma. The ratio of development of carcinoma is usually given as from 3 to 5 per cent. Ovarian resection is justifiable in cases of bilateral cystic teratomas in young women in whom subsequent pregnancies are desired. Solid teratomas are among the rarest of ovarian neoplasms. There is no case in the records of Bellevue Hospital in which the gynecologic admissions average 1,800 cases a year. So-called struma ovarii may be benign or malignant. Retroperitoneal teratomas are unusual tumors. There is no case of solid retroperitoneal teratoma recorded in the literature. Gordon reports a case of cystic retroperitoneal teratoma weighing 11 kg.

Chronic Pancreatitis.—Hinton believes that some of the recurrent attacks of upper abdominal pain following cholecystectomy seem to be due to acute exacerbation of a chronic pancreatitis. This diagnosis should be arrived at by a very careful process of elimination. Some of these cases spontaneously cure themselves if given the opportunity. Surgery employed in these cases does not seem to cure the condition or prevent subsequent attacks.

Cerebrospinal Fluid in Spinal Cord Tumors.—Stookey and his associates insist that in suspected spinal cord neoplasms manometric readings of the cerebrospinal fluid through lumbar puncture should be a routine procedure. Examination is incomplete without a manometric study. Manometric studies of the cerebrospinal fluid through lumbar puncture (without cistern puncture) may indicate complete subarachnoid block, incomplete subarachnoid block, or the presence of a free, unobstructed subarachnoid space. In all patients operated on, in whom the manometric tests indicate complete subarachnoid block, some form of spinal cord neoplasm was found In all patients in whom the manometric tests indicated incomplete subarachnoid block, either a spinal cord neoplasm or some other form of subarachnoid block was found. Negative manometric readings were found in two patients having an early symmetrical enlargement of the cord, presumably an intramedullary tumor, which, however, did not interfere with the free circulation of the cerebrospinal fluid. In all others exposed the manometric findings were substantiated at operation. Combined lumbar and cistern puncture is indicated when manometric studies through the lumbar puncture alone do not permit of definite conclusions being drawn. In the authors' experience combined lumbar and cistern puncture was indicated in only three cases out of fifty suspected spinal cord tumors.

Deltoid Paralysis Following Shoulder Injuries.—Smith and Christensen report two cases of nonpenetrating injury to the shoulder, resulting in paralysis of the deltoid, both showing the typical area of anesthesia and both showing no tendency of the humerus to fall away from the glenoid. One case was uncomplicated by any other nerve injury, and in the other case there was a concomitant injury to the branches of the radial supplying the triceps muscle but with no demonstrable lesions of the first three primary divisions of the plexus. In both cases, a definite lesion (solution of continuity) of the circumflex nerve was demonstrated at operation. In both cases, there was no roentgen-ray evidence of bone injury. The exact mechanism of injury was also obscure but in at least one case was probably due to a subglenoid dislocation of the upper end of the humerus. These two cases apparently demonstrate that even common injuries of the shoulder without crushing, penetration, or laceration may result in definite solution of continuity of the circumflex nerve with resulting complete and permanent paralysis of the deltoid muscle.

Glycosuria in Surgical Patient.—In a series of forty-seven cases treated before insulin, there were twenty deaths (42 5 per cent.), and four additional patients who left the hospital in a critical condition refusing treatment. In a series of twenty-two cases treated with insulin, there was one death (4.5 per cent.). Urinalysis is performed by Menninger every three hours as long as the patient shows glycosuria, with insulin administration based on the findings. Fluid intake is encouraged preoperatively and forced to at least 2,000 daily, postoperatively. The diet given allows 30 calories per kilogram of body weight, with 1 gm. of protein per kilogram of body weight, and the remainder in carbohydrate and fat in the ratio of 1 to 3. Blood chemistry is very desirable in cases of coma, in partial urinary retention, and after glycosuria has disappeared. In the great majority of cases, it is not essential while the patient shows glycosuria and very valuable time is lost, with much increased danger to the life of the patient, in waiting several hours for a blood sugar determination. Alkaline therapy is not used at present. Traumatic glycosuria may be effectively treated, when necessary, with insulin.

Operation for Malposition of Uterus.—Carrington divides the round ligament; the proximal half of the ligament is sutured to the rectus sheath, and the distal half is sutured to the anterior surface of the uterus, thus providing two new supports for this organ.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

19: 265-379 (Sept. 30) 1925

Proteocephalus Marenzelleri, P. Naiae and P. Viperis. W. N. F. Woodland.—p. 265.
Human Trypanosomiasis in Luagwa Valley, Northern Rhodesia. A. Kinghorn.—p. 281.
Experimental Study on Development of Dwarf Tapeworm. Y. Saheki. —p. 305.
Sporozoon of Phlebotomus Papatasii. S. Adler and O. Theodor.—p. 309.
Genus Tetracampos Wedl, 1861. T. Southwell.—p. 315.
New Medium for Differentation of B. Coli in Water Analysis. J. L. Pawan.—p. 319.
*Malaria Infection as It Occurs in Late Pregnancy. D. B. Blacklock and R. M. Gordon.—p. 327.
Coordination of Effort in Tsetse-Fly Investigations. W. Yorke.—p. 373.

Malaria Infection in Late Pregnancy.—Blacklock and Gordon state that malaria infection of the placenta occurs in about 36 per cent. of native women in Sierra Leone. These women are practically negligible as a source of danger to the community, so far as gamete production and consequent anopheline infection are concerned. Pathologic effects on the mother may be lacking entirely. The children may in some cases be born and survive, and may appear free from any effects. On the other hand this series contains in other cases proof of a very complete association between maternal infection in the placenta and death of the child in utero, or within a seven day observation period after birth. Examination of a large number of infected placentas showed that severe destruction of the erythrocytes may occur in the umbilical cord in spite of the absence of congenital malaria.

Australian Journal of Experimental Biology and Medical Science, Adelaide

2: 135-166 (Sept. 16) 1925

*Histologic Observations on Pancreatic Secretion. E. S. Horning.—p. 135.
Source of Protein in Albuminuria of Experimental Nephritis. C. H. Kellaway, G. F. S. Davies and F. E. Williams.—p. 139.
Trial and Error and Intelligence in Behavior of Certain Arthropods. W. E. Agar.—p. 151.
*Nerve Net of Plain Muscle; Its Relation to Automatic Rhythmic Movements. O. W. Tiegs.—p. 157.

Pancreatic Secretion.—According to Horning's observations, the zymogen grains of the pancreatic cells of the guinea-pig are secreted as grains (globules) into the acini, where they are rapidly dissolved. They arise in the cells mainly from the filamentous mitochondria. This suggests the enzymatic nature of the latter. They also seem to contain a lipoidal substance. The zymogen grains may be secreted, not only into the acinar ducts, but also into the pancreatic blood vessels.

Nerve Net of Plain Muscle.—Tiegs has found that a nerve net is always developed in intimate association with plain muscle tissue, never in connection with striated muscle tissue. Nerve fibers arise from the nerve net, and terminate directly on the muscle fibers. Such a nerve net is capable of serving as a basis for simple reflexes, without the intervention of a central nervous system. Automatic rhythmic movements of isolated, deganglionated plain muscle strips always originate in the nerve net, and never directely in the muscle coat. Coordinated action of plain muscle tissue is always neurogenic, never myogenic.

British Medical Journal, London

2: 589-632 (Oct. 3) 1925

Rheumatoid Arthritis; Causation and Treatment. I. H. Rolleston.—p. 589.
Id. II. W. R. Ackland.—p. 594.
Id. III. R. Waterhouse.—p. 595.
Id. IV. R. S. Osgood.—p. 596.
Id. V. R. Jones.—p. 597.
Id. VI. J. M. H. Munro.—p. 598.
Id. VII. A. G. T. Fisher.—p. 599.
Id. VIII. W. Willcox.—p. 600.
Id. IX. A. Cawadias.—p. 602.
*Surgical Treatment of Mitral Stenosis. H. S. Souttar.—p. 603
*Syphilis and Aneurysm: Age and Sex Incidence and Cause of Death in Aortic Aneurysm. E. M. Brockbank.—p. 606.
Two Forms of Dermatitis Due to Use of Methylated Spirit Externally. P. B. Mumford.—p. 607.
Common Mistakes in Teaching of Physical Training. H. B. Hill.—p. 608.
Medical, Surgical, Obstetrical: Direct Fracture of Clavicle with Symptoms Simulating Cervical Rib.—p. 608.
Congenital Duodenal Atresia. C. D. Maitland.—p. 609.
Elephantiasis of the Breast. M. Jackson.—p. 609.

Surgical Treatment of Mitral Stenosis.—Souttar describes a method of approach to the mitral valve for the purpose of cutting it and cites one case in which it was tried successfully, except that no cutting of the valve was done. As the stenosis was of moderate degree, and was accompanied by so little thickening of the valves, it was decided not to carry out the valve section which had been arranged for, but to limit intervention to such dilation as could be carried out by the finger. The patient made an uninterrupted recovery, the freedom from pain or any disturbance which might have been expected to result for the operation being remarkable. Her general condition appeared to be greatly improved, but the physical signs showed little or no change. At the end of the three months she declared that she felt perfectly well, although she still became somewhat breathless on exertion. Souttar asserts that this is the first occasion on which an attempt has been made to reach the mitral valve by this route in the human being, or to subject the interior of the heart to digital examination.

Syphilis and Aortic Aneurysm.—The age and sex incidence and cause of death in aortic aneurysm are discussed by Brockbank as the result of his analysis of fifty-six cases. Of these fifty-six cases, forty-seven were men and nine were women. In fifty-two cases, or 92.85 per cent. (forty-five men and seven women), and in forty-three of the forty-five men (95.5 per cent.), there was a definite history of previous syphilis or a positive Wassermann test. The Wassermann blood reaction was positive in forty out of forty-four cases tested. The ages of the fifty-two patients with positive test or history of syphilis varied in the men from 29 to 68, and in the women from 37 to 70. Of 200 cases of aortic aneurysm found post mortem, the average age at death was 43.87 years. In 42.5 per cent. of all the cases death occurred before 40 years of age and in 75.5 per cent. before 50. Death occurred in these cases from exhaustion and heart failure and rupture of the aneurysm and with virtually equal frequency.

Calcutta Medical Journal

20: 1-48 (July) 1925

Basal Metabolism. H. N. Mukherjee.—p. 1.
Report on 200 Cases of Kala-Azar. B. Mazumdar.—p. 10.
Treatment of Gonorrhea in Male. S. Chatterji.—p. 14.
Tuberculous Cervical Glands. S. C. Sen Gupta.—p. 17.
Case of Spontaneous Inversion of Uterus. R. N. Kundu.—p. 20.
Case of Intestinal Stasis and Anuria. S. M. Sarkar.—p. 22.
Case of Threatened Abortion. B. B. Bhattacharyya.—p. 24.

China Medical Journal, Shanghai

39: 767-854 (Sept.) 1925

*Acute Intestinal Obstruction. A. S. Taylor.—p. 767.
Syphilis: Importance to Physicians in China. G. W. Leavell.—p. 776.
*Sodium Thiosulphate in Treatment of Mercurial Stomatitis. G. A. M. Hall.—p. 785.
Cesarean Section. E. D. Smith.—p. 788.
Case of Triradiate Tenia Solium from North China. E. C. Faust.—p. 800.
Reels for Ligature Silk. J. P. Webster.—p. 804.
Gastro-Enterostomy. E. C. Wilbur.—p. 807.
Cases of Atriplicism. S. H. Martin.—p. 808.

Acute Intestinal Obstruction in China.—Thirty-three cases of acute intestinal obstruction are reported by Taylor. Six patients died following operation. In four of these patients gangrene of the bowel, with general peritonitis, was present before the operation. Strangulated hernia was the cause of the obstruction in thirteen cases. Carcinoma was responsible for the obstruction in three cases. Tuberculosis was the cause in three instances. Bolbulus and intussusception were each responsible for one case. Adhesions following gastro-enterostomy caused obstruction to the duodenum and afferent loop of the jejunum in five patients. Adhesions following other operations caused obstruction in three cases.

Sodium Thiosulphate in Mercurial Stomatitis.—Hall reports striking results from the use of sodium thiosulphate in four cases of severe mercurial stomatitis, and one case of tissue reaction due to the leaking of neo-arsphenamin from a vein. All the patients had an extreme degree of stomatitis. In none of the cases was there any gastro-intestinal disturbance, or any involvement of the kidneys. In two cases 0 45 gm. of chemically pure sodium thiosulphate, in 10 c c. of water, was injected as the first dose, and no untoward effect was noted. A third patient, who was suffering considerably from syphilitic bone pain, and in whom it was desired to clear the condition rapidly in order that arsphenamin treatment might be started, was given one dose only of 0 6 gm This was followed in about half an hour by a slight rigor, without, however, any further ill effects The next day the mouth was so much improved that food could be taken with relish. Local treatment in all cases consisted of frequent washing out of the mouth with Dobell's solution. The patient with the arsphenamin in the subcutaneous tissue complained of great pain of a burning character, coming on very soon after injection, and after a few hours had considerable swelling and redness of the whole of the antecubital area. Ten patients received an injection of 10 c.c. of a solution containing 0 6 gm of sodium thiosulphate.

Indian Medical Record, Calcutta

45: 273 304 (Sept) 1925

Tuberculosis in Bengal G N Mukherji—p 273
Nature's Covers and Their Significance M. S Nawaz—p. 276.
Preservation of Eyesight K B T Hussain—p 279
Nastin Treatment of Leprosy R N Chatterjee—p 286

Japan Medical World, Tokyo

5: 201 235 (Aug 15) 1925

*Treatment of Elephantiasis H Kimura—p 201
Morphology of Necks of Japanese, Shape of Chest U Hasehawa—p 211.

Treatment of Elephantiasis.—For the purpose of establishing lymphatic drainage in the treatment of elephantiasis, Kimura brings normal and affected skin into close contact by planting a pedunculated normal skin flap with its subcutaneous fatty tissues into the affected site. This method is more effective in the penis or scrotum than in the lower extremity. In elephantiasis of the lower extremity, this method, together with Kondoleon's method, and the removal of superabundant tissues, has given better results than any method now in use

Kenya Medical Journal, Nairobi, East Africa

2: 155 184 (Sept) 1925

Plague in South Africa W H Kauntze—p 163.
*Eradication of Helminthiasis from Egyptian Army B H. H Spence.—p 183

Eradication of Helminthiasis in Egypt.—Spence says that in the Egyptian army recruits infested with helminthia were given 5 c.c. of carbon tetrachlorid, by mouth, before the morning meal, i e, on a naturally empty stomach. Two hours later, 25 gm of magnesium sulphate, in 50 c.c. of water, was given as a purge. Ninety-five per cent of those examined three months after treatment were found to be cured.

Lancet, London

2: 735-790 (Oct 10) 1925

Ununited Fractures E W. W. Groves—p 735
Avenues in Medicine C Sherrington—p 741
Tradition in Medicine C E Lakin—p 744
The Medical Career. H. F Waterhouse—p. 746
Stable Nervous Control in Relation to Flying Efficiency. M Flack—p 748
*Fecal Enterolith of Small Intestine R. J Morris—p 751.
*Ischemia Cordis Intermittens L Bischoff—p 753.

Fecal Enterolith of Small Intestine.—In Morris' case the conclusion arrived at was that the symptoms of intestinal obstruction were due to malignant disease. At the operation a hard mass was found lying free in the lower portion of the ileum and was successfully removed. It was an enterolith weighing 33.4 gm., 5 5 cm. long, and 3 8 cm in diameter. The enterolith was principally fecal in nature, and it did not originate as a gallstone, a bile acid concretion or a blood clot. The appearance did not suggest that it was an "oatmeal stone," such as has been described by Hammarsten.

Ischemia Cordis Intermittens.—Bischoff describes a group of anginoid phenomena, which he designates as ischemia cordis intermittens. The condition affects patients of about from 30 to 70 years, mostly males, who often, after more or less brisk walking (generally in the open) or climbing, or, in fact, soon after any sort of exercise, feel a disagreeable pain behind the sternum, which passes into a feeling of spasmodic contraction and oppressive sensations of anxiety, culminating in such a feeling of annihilation that the patients are obliged to stop; if they must perforce move on, they can only do so under extreme necessity. It may lead to the complete loss of consciousness. There is no dyspnea with this affection. A rest of a few seconds, or at most of minutes, is sufficient to enable the patient to continue his walk in perfect comfort Soon, however, after the resumption of exercise the pain returns, and rest becomes more necessary. The history of all patients, with slight variations, reveals the same almost stereotyped phenomena. Bischoff cites seven cases.

South African Medical Record, Cape Town

23: 351-372 (Aug 22) 1925

Pyelography Applied to Renal Disease E Barnard Fuller—p. 352.
Normal Infant Feeding G K. Cross—p 356.
Discolored Teeth and Their Treatment. G Newton.—p 361
Triumph of Sampson Handley. A. L McGregor—p 363.

Journal of Tropical Medicine and Hygiene, London

18: 345-360 (Oct. 1) 1925

*Cultivation of Certain Amebae and Flagellates of Man, Using Technic of Boeck and Drbohlav J. G Thomson and A Robertson—p 345
Common Endemic Fevers of Ceylon. E C. Spaar—p 349

Cultivation of Amebas and Flagellates.—The work of Boeck and Drbohlav on the cultivation of *Endameba histolytica* and *E coli* has been confirmed by Thomson and Robertson. *Diendameba fragilis* and *Endolimax nana* and *Iodameba butschlii* have also been cultivated, but experiments to inoculate kittens with the cultures were negative. *Trichomonas hominis, Chilomastix mesnili* and *Tricercomonas intestinalis* grow readily on the medium of Boeck and Drbohlav to which has been added a small quantity of fresh sterile human feces. The movements and behavior of the organisms in culture have been studied

Medical Journal of Australia, Sydney

2: 359-386 (Sept. 19) 1925

Value of Blood Pressure Readings J. F. Stewart—p 359
James Cook and Australian Medical Harbingers. N. J. Dunlop—p. 362.
Case of Pregnancy at Full Term in Rudimentary Horn of Uterus. C. E. D'Arcy—p 373

Medical Journal of South Africa, Johannesburg

21: 1-30 (Aug) 1925

Cerebrospinal Meningitis C Porter—p 8
Work of Laboratory in Relation to Practice of Medicine S Lister.—p 12
Fetal Death R L Impley—p. 15.

Tohoku Journal of Experimental Medicine, Sendai, Japan

6: 191 394 (Sept 18) 1925

Epinephrin Hyperglycemia and Glycosuria III. Reducing Substances. T Ohara—p. 191
Id IV Antagonism Between Pancreas Hormone and Epinephrin T Ohara—p 213
Agglutination Changes in Pneumococcus in Animal Body. T. Takami.—p 248
Pneumococcus Grouping by Agglutination T Takami—p 260
Serologic Blood Studies on Japanese and Ainus Y Ninomiya—p. 266.
Local Irritability of Digitalis Infusions M Nakamura—p 278
Relation of Thyroid Function to Oxygen Consumption of Blood. E. Tsukamoto—p 286
Blood Sugar Level and Epinephrin Content of Suprarenals in Diphtheritic Intoxication S Mikami—p 297
Relation of Basal Metabolism and Minute Volume to Internal Secretions. I T Odaira—p 325.
Pharmacologic Action of Amines on Organs Containing Involuntary Muscles M Nakamura—p 367.
Antigen in Animal Body. K. Sakurabayashi—p 390

Bruxelles-Médical, Brussels

5: 1372-1396 (Sept. 13) 1925

Rôle of Humoral Fluids in Physiology and Pathology. J. Demoor. —p. 1372.
The Targowla Reaction. R. Bernard and G. Ruelle.—p. 1379. See abstract, September 26, p. 1008.

5: 1443-1470 (Oct. 4) 1925

Treatment of Streptococcus and Staphylococcus Dermatoses. H Gougerot.—p. 1443.
*Value of Combined Treatment of Syphilis. Bernard.—p. 1450.
Etiology of Juxta-Articular Nodes. Dubois and Moncarey.—p. 1453.
Medical Treatment of Gastric Ulcer. G. Faroy and R. Worms.—p. 1456.
Falling and Blanching of the Hair from Emotional Stress. P. Sollier. —p. 1458.

The Efficiency of Treatment for Syphilis as Revealed by the Cerebrospinal Fluid.—Bernard examined the cerebrospinal fluid of 200 syphilitics who had responded negatively to the Wassermann tests of the blood for periods ranging from six months to several years. The cerebrospinal fluid was normal in eighty-two of the patients, and pathologic in the remaining 118. About 72 per cent. of the subjects with a normal cerebrospinal fluid had been treated with arsenicals and mercury; and only 17 per cent. with arsenicals alone. About 14 per cent. with a pathologic cerebrospinal fluid had been treated with arsenicals and mercury; 63 per cent. with arsenicals alone. The simultaneous use of both drugs seemed to be more effectual than alternating the mercury and arsenical series.

Gynécologie et Obstétrique, Paris

12: 97-196 (Aug.) 1925

Biologic Rôle of the Corpus Luteum and the Interstitial Gland of the Ovary. G. Schickelé.—p. 97.
*Obstetric Operations on the Pelvis. G. Rossier.—p. 167.
*Idem: Choice of Procedure. V. Le Lorier.—p. 185.

Indications for Operations to Enlarge the Pelvis.—Rossier reviews the indications for pubiotomy and symphyseotomy with reference to the obstetrical literature of the last fifty years. The main indications are contracted pelvis, excessive size of the fetal head, slow dilatation and malpresentation of the head In febrile cases of contracted pelvis, with a true conjugate a little less than 8 cm., pubiotomy should be preferred to cesarean section. With the subcutaneous technic for pubiotomy, fever is not a contraindication, neither is primiparity. The great advantage of these operations to enlarge the pelvis is that they allow carrying expectant treatment to the extremest limits.

Methods of Choice in Operations to Enlarge the Pelvis.—Le Lorier reiterates that the subcutaneous technic is free from the dangers of the open method. The results of subcutaneous pubiotomy seem to be the same as those of subcutaneous symphyseotomy. Intraspinal anesthesia is advisable when rapid delivery, spontaneous or instrumental, can be anticipated.

12: 197-276 (Sept.) 1925

*Broad Ligament Inclusions. Forgue and Crousse.—p. 197.

Broad Ligament Inclusions.—Forgue and Crousse's long and detailed study of this subject was one of the leading addresses at the recent gynecologic congress at Paris. They present a circumstantial review of the inclusions, mostly tumors, located in the broad ligament, their development, consequent changes in the ligament, and the surgical treatment.

Médecine, Paris

6: 829-904 (Aug.) 1925

Pediatrics in 1924. P. Lassablière.—p. 829.
Bladder Calculi in Children. P. Nobécourt.—p. 843.
*Treatment of Spasm of the Larynx. G. Mouriquand.—p. 847.
*Pyodermitis in Young Children. P. Chatin.—p. 854.
Examination of the Fundus of the Eye in Nervous Diseases of Children. L. Babonneix.—p. 856.
Asthma in Children. M. Péhu and F. Grivet.—p. 862.
Nephritis of Pneumococcus Origin. Leenhardt and Sentis.—p. 868.
Tubercle Bacilli in Feces of Tuberculous Children. C. Gardère.—p. 872.
Treatment of Tenia in a Wetnurse. P. Balard.—p. 874.
Seashore Treatment. G. Baudouin.—p. 878.
Vaccine and Serum in Treatment of Pneumonia. G. Blechmann.—p. 886
Light Deficiency as Factor in Infants' Diseases. Dorlencourt.—p. 891.
Pathogenesis of Jaundice in the New-Born. G. L. Hallez.—p. 896.

Etiology and Treatment of Spasm of the Larynx.—Mouriquand considers two types of spasm of the larynx, one from the spasmophilic diathesis, the other associated with enlargement of the thymus. Chvostek's sign appearing only in cases of spasmophilic origin, is important in differential diagnosis. This sign does not occur in infants under 6 months old. About 75 per cent. of all the children with spasm of the larynx presented signs of congenital syphilis; the frequent coincidence with rickets was also evident. Ultraviolet rays are the radical remedy for constitutional spasm of the larynx. Under other treatment, the six children died in the group of six cases with spasm of the glottis, while under ultraviolet rays, all the children recovered in a group of ten thus treated. The first exposure lasts one minute, and is gradually increased to five minutes by the fifth day. Then again a one minute exposure is given. A total of from twenty to thirty sittings, one daily, is required. Improvement is noted after five exposures; disappearance of Chvostek's sign and hypocalcemia after twenty. In spasm of the larynx with an enlarged thymus, the roentgen rays may be indicated. Treatment for syphilis should supplement both kinds of therapy. He reiterates that spasmophilia and rickets are deficiency diseases, the deficiency being in ultraviolet rays.

Ultraviolet Rays in Treatment of Pyodermitis in Young Children.—Chatin emphasizes that suppurating skin diseases may become epidemic in day nurseries and other places where young children are collected. His six years of experience showed stock staphylococcus vaccine to be ineffectual, but eight cases were cured with an autovaccine. Ultraviolet rays appeared to be the most beneficial treatment, inducing a rapid healing of the pyodermitis in twelve cases. The development of folliculitis into pyodermitis was checked under the rays in the already contaminated children. The rays were applied to the back of the child. They are given at one day intervals. The first exposure was for two minutes; the following were prolonged by two minutes, to a total of ten minutes at a sitting. Healing was usually obtained with five or six exposures; sometimes eight or ten were needed. The ultraviolet rays can be counted on to arrest an epidemic under such circumstances.

Paris Médical

57: 253-288 (Oct. 3) 1925

Neurology in 1925. A. Baudouin and H. Schaeffer.—p. 253.
Vertebral Arthritis or Tumor? J. A. Barré.—p. 266.
Crural Neuralgia and Radiculalgia. André-Thomas and Phelipeau. —p. 269.
Cervicobulbar Form of Epidemic Encephalitis. Schaeffer and Mathieu. —p. 277.
*Ionization Treatment of Spastic Hemiplegia. G. Bourguignon.—p. 280.

57: 289-304 (Oct. 10) 1925

Treatment and Prophylaxis of Diphtheria. P. Lereboullet.—p. 289.
Radium in Treatment of Cancer of the Tongue. C. Regaud.—p. 296.
Anaphylaxis and Flocculation. A. Lumière.—p. 299.

Transcerebral Ionization Treatment of Hemiplegic Contracture.—Bourguignon applies the positive electrode to the eye on the opposite side from the hemiplegia. The positive electrode is a cotton tampon that just fits into the entrance of the orbit, and is moistened with a 1 per cent. calcium chlorid solution. The negative electrode, moistened with plain water, is applied to the back of the neck. A 2 or 3 milliampere current is used at first, and the maximal strength of 4 or 5 by the third day. Six daily sittings, each lasting thirty minutes, are given the first week, and every second day the second, third and fourth weeks. This is followed by a three weeks' rest. The method was used in patients affected with hemiplegia for two to ten years and even longer. It resulted in a remarkable reduction of the rigidity, restoration of movements, improvement in speech, disappearance of spasms in jacksonian epilepsy, and also attenuation of spasmodic laughing and crying. Calcium ionization proved to be effectual only in spastic hemiplegia, but not in the flaccid type, evidently acting merely on the sclerotic process in the nerves. In syphilitic hemiplegia, calcium may be advantageously substituted by iodin. The ionization treatment appeared to be completely harmless. Faradization of antagonist muscles, with augmented chronaxia, may be a useful adjuvant in combating the contractures.

Presse Médicale, Paris

33: 1297-1312 (Sept. 30) 1925

*Leukemia from Radioactive Injury. P. Emile-Weil.—p. 1297.
*Etiology of Metrorrhagia. C. A. Castaño.—p. 1299.
Tuberculosis and Military Service. L. Jullien.—p. 1301.
High-Frequency Currents in Otorhinolaryngology. Leroux-Robert.—p. 1304.

Leukemia and Pernicious Anemia Consecutive to Occupational Injury from Radioactive Substances.—Emile-Weil reports a fatal case of myelogenous leukemia in a mechanic occupied for several years in the preparation of radioactive substances of the thorium family. Another mechanic, working on the same substances for several years, in the same factory, died from pernicious anemia. Both were robust and of healthy families. On microscopic examination, the lesions of the spleen, liver and bone marrow appeared to be identical with those in ordinary leukemia. It is assumed that irradiations as well as infections may induce changes in the cells in the hematopoietic organs. The author comments on the fact that the same radioactive substance seemed to be responsible for the two quite different blood diseases, probably on account of differing predisposition. He cites another case of fatal leukemia in a woman given a single intensive seven hour application of radiotherapy seven years before.

Rôle of Corpus Luteum in Uterine Hemorrhages.—Castaño's conclusions are based on his experiments on guinea-pigs. He asserts that the corpus luteum is responsible for the whole uterine menstrual cycle; it takes an important part in formation of the decidua and development of the ovum. Hormonal changes from the corpus luteum, and not inflammation of the endometrium, induce the reaction in the uterine mucosa entailing hemorrhages with fibroma and uterine disease.

Schweizerische medizinische Wochenschrift, Basel

55: 905-928 (Oct. 1) 1925

*Hallux Valgus. R. Scherb.—p. 905.
*Hearing Range. E. Schlittler.—p. 907.
*Serologic Reactions in Syphilis. C. Schuler.—p. 911.
Phantom for Obstetric Teaching. H. Brantmay.—p. 918.
Submental Abscess. F. Tramer.—p. 921.
Quacks and Official Medicine. L. Frank.—p. 921.

Hallux Valgus.—Observations of synergisms of muscles, made by Scherb with the aid of the moving sidewalk, revealed surprising individual differences. Abnormities of the action of the long muscles of the big toe may account for hallux valgus. He emphasizes that it is erroneous to endeavor to explain deformities only locally. The functional deviations due in the last instance to abnormal innervation may clear up many conditions. The treatment should be radical.

Hearing Range.—Schlittler tested the apparatus introduced by the state railroads in Switzerland. It was claimed that falling lead balls in the apparatus could be counted by the examined subject at the same distance as he hears the whispered voice. He found that many subjects hear the balls at a much greater distance. He finds that the technic of examination by the whispered voice is simple and more reliable. It should be taught properly in every medical school.

Serologic Reactions in Syphilis.—Schuler examined 5,000 serums with the Wassermann, Sachs-Georgi, Dold and Meinicke turbidity methods. The Wassermann reaction gave the largest number of positive results in syphilis, and the smallest number of false positive reactions. Of the others, the Sachs-Georgi was best, but gave nonspecific results in tuberculosis, arthritis and enteritis. The two other methods gave too many false positive results. They are of use for indicating the advisability of provocation treatment, with all the caution necessary.

Archivio Italiano di Chirurgia, Bologna

13: 1-782, 1925. Dedicated to A. Carle. Vol. II. Partial Index

Technic for Resection of Sternum. G. Parlavecchio.—p. 1.
*Amputation of Male Mamma for Tuberculous Process. A. Turco.—p. 18.
Malignant Thymoma in Girl Aged 9. G. Zanetti.—p. 25.
Treatment of Fistulas into the Bronchi. G. Anzilotti.—p. 34.
Special Plastic Operation After Removal of Two Large Hydatid Cysts in Left Lung. G. Tusini.—p. 58.
Review of 168 Laparotomies. E. Delfino.—p. 90.
*The Peritoneum and Local Immunity. S. Solieri.—p. 111.
Action on Tissues of Escaping Urine and Feces. L. Carmona.—p. 117.
Retroperitoneal Tumors. P. Nigrisoli.—p. 170.
Excretion by the Stomach of Injected Dyes. U. Faccini.—p. 202.
*Relations Between Gallbladder and Stomach. G. A. Pietri.—p. 212.
*Ulcer-Cancer of the Stomach. G. Massa.—p. 230.
*Postoperative Peptic Ulcers. R. Alessandri.—p. 257.
*Anastomoses Between Gallbladder and Digestive Tract. F. Marinelli.—p. 343.
*Acute Necrosis of the Pancreas. D. Calzavara.—p. 429.
Fatal Sepsis After Cauterization of Bladder Tumor with Trichloracetic Acid. F. De Gironcoli.—p. 539.
Hemorrhage from Rupture of Corpus Luteum in Nonpregnant Woman. F. Niosi.—p. 602.
*Cancer of Cervix of Myomatous Uterus. D. Giordano.—p. 652.
*Ankylosis of the Knee. G. Gatti.—p. 670.
Strip from Femur to Replace Upper Tibia. G. Serafini.—p. 683.
*Periarterial Sympathectomy for Mal Perforant. L. Durante.—p. 688.
Pes Cavus and Principles for Effectual Treatment. R. Galeazzi.—p. 697.
Treatment of Congenital Clubfoot. G. Scarlini.—p. 726.

Tuberculosis of Male Mamma.—Turco says that the case he reports, in which he amputated the mamma in the young man, is the first of the kind to be published in Italy. He has collected from the literature 200 instances of a tuberculous process in the female breast and eleven in the male.

The Peritoneum and Local Immunity.—Solieri argues that as the peritoneal serosa seems to surpass all other tissues in its power of resisting virulent germs, we are justified in regarding this as an acquired local immunity. He thinks this can be trusted, and drainage avoided, after the cause of the peritonitis has been removed and the serosa cleansed.

Relation Between Biliary Apparatus and Stomach Functioning.—Pietri's research on dogs gave constantly concordant results indicating a functional reflex arc between the gallbladder and the stomach. Partial or total loss of gallbladder functioning depresses gastric secretion, as also malfunction in the bile duct region. Operative measures are unable to restore normal secretory conditions to the stomach.

Gastric Ulcer-Cancer.—In Massa's two cases the women had had gastric disturbances for years. They noted that the pains were recurring oftener and more severe, with more frequent vomiting, and general depression, but the most striking sign of malignant degeneration of the indurated ulcer was the complete lack of any benefit from the usual measures which had previously proved useful.

Postoperative Peptic Ulcers.—Alessandri states that there was no evidence of an excessively acid or potent gastric juice in thirteen of his fourteen cases of peptic ulcer after gastro-enterostomy. The roentgen-ray findings were generally decisive.

Anastomosis Between Gallbladder and Gastro-Intestinal Tract.—Marinelli made a direct communication between the gallbladder and the stomach in twelve dogs and between the gallbladder and the duodenum or the colon, each, in five others. There was irritation and inflammation in every instance, wherever the gallbladder was sutured to the digestive tract, but this reaction was least with cholecystogastrostomy. It was so severe with anastomosis between the gallbladder and the colon that this technic should be discarded entirely.

Experimental Study of Acute Necrosis of the Pancreas.—Calzavara's research was on dogs and a few rabbits—twenty-one animals in all. He injected bile directly into the pancreas. A number of colored plates show the lesions induced. The animals could be saved by operative removal of the exudate, and drainage, provided this was done within the first six hours and if the amount of bile injected had not been too large. When the conditions allow a favorable outcome, the hyperglycemia begins to decline and disappears by the sixth day. When the hyperglycemia persisted, the animals all died. Hence, acute hyperglycemia in necrosis of the pancreas aids not only in differential diagnosis, but also in the prognosis, if it keeps high.

Cancer of Cervix of Myomatous, Assumed Pregnant Uterus.—The patient was supposed to be at the fifth month of her pregnancy but no fetus was found at the operation. This consisted in removal of the uterus and vaginal wall through a laparotomy. She is in good health to date five months later.

Correction of Ankylosis of the Knee.—After Gatti had mobilized the joint by cutting away adhesions and rounding the articulating surfaces, he interposed a free flap of fascia lata (on the head of the tibia). The boy, aged 9, had cut his knee in a fall six months before.

Periarterial Sympathectomy for Painful Trophic Lesions on the Feet.—Durante's contention that the decortication of the artery should be close to the peripheral lesion has already been mentioned in these columns. He here describes in detail his most convincing case: The mal perforant had proved rebellious to stretching of the sciatic nerve and to periarterial sympathectomy on the femur, while it healed promptly after periarterial sympathectomy on the posterior tibial.

Prensa Médica Argentina, Buenos Aires

12: 305-340 (Aug. 30) 1925

Hydatid Cyst in the Humerus. S. Marino and C. Fernicola.—p. 305.
*Trophic Disorders of the Nails. Castex and Camauer.—p. 315.
Treatment of Leprosy. J. L. Carrera.—p. 323.
Cancer in Stump of Uterus. J. C. Ahumada.—p. 324.
Endotoxins and Exogenous Toxins. L. La Porta.—p. 328.

Trophic Affections of the Nails.—Castex and Camauer devote this fourteenth article on the sympathetic nervous system to the influence of the nervous system on the development, growth and nutrition of the nails. In all their numerous patients with urticaria, vasomotor disturbance, vitiligo, etc., and other manifestations of a pathologic condition in the sympathetic system, the nails always presented abnormal findings, from simple parallel longitudinal or transverse lines to the severest forms of onychogryphosis. They insist on the necessity for studying the vegetative nervous balance in every case of disease of any kind accompanied with anomalies in the nails. The factor responsible for the loss of balance in the involuntary nervous system may be of toxic, infectious or traumatic origin, or from emotional stress. It may act directly on the sympathetic or by the mediation of the endocrine system or by regional or remote pathologic reflexes. They describe in detail three extreme cases and the therapeutic deductions therefrom.

12: 341-376 (Sept. 10) 1925

Incomplete Rupture of Crucial Ligaments. Valls and Verbrugge.—p. 341.
*Hyperkeratosis and Keratodermias. Castex and Camauer.—p. 350.
Case of Double Uterus. D. Iraeta and C. D. Medina.—p. 360.

Hyperkeratosis and Keratodermia.—This is the fifteenth article of the series, mentioned in the preceding abstract, which aims to reveal the underlying cause—the upset in the balance in the vegetative nervous system—in what seems a purely local affection. The horny changes in the skin in the two cases described were accompanied by signs of sympathetic disturbance. The endocrine system is generally more or less abnormal in such cases of loss of sympathetic balance. To reduce the hyperkeratosis, the causal factors must be determined and combated, in addition to local measures.

Semana Médica, Buenos Aires

2: 537-604 (Sept. 3) 1925

*Acquired Characters. J. Llambias and D. Brachetto-Brian.—p. 541.
Malignant Pustule. J. Roberto Paso.—p. 543.
An Epidemic of Pneumococcus Infection in the New-Born. J. P. Garrahan and S. Y. Bettinotti.—p. 546.
The Legg-Calvé Disease. A. Rodríguez Egaña.—p. 549.
*Acute Suppuration in the Thyroid. J. Giménez Zapiola and L. Sánchez Moreno.—p. 566.
The Fixation Abscess. M. Castiñeiras.—p. 569.
Spleen Irradiation for Asthma. M. Miranda Gallino and H. Malter Terrada.—p. 584.
Causes of Position Adopted for Limbs in Joint Processes. Valls.—p. 587.
Case of Discrete Generalized Tuberculosis. Goyena and Mackinlay.—p. 589.

Hereditary Transmission of Acquired Characters in the Peyton Rous Chicken Sarcoma.—Llambías and Brachetto-Brian confirm that passage of the Peyton Rous sarcoma through a fowl attenuates its virulence. When the malignancy is transmitted to the offspring, it is transmitted in this attenuated form, which they regard as the transmission of an acquired character. The sarcoma may lose all its virulence in this way. Conditions in this respect resemble those with cancer in man and animals—further proof, they say, of the biologic identity of these chicken sarcomas and human cancer.

Acute Suppurating Thyroiditis.—There had been no tendency to goiter apparent in the young woman before the acute onset of the suppuration in the thyroid. It induced severe symptoms from compression, but this subsided after the presumably solitary abscess in the thyroid had discharged its contents into the respiratory tract the tenth day. The vomica occurred spontaneously. The lesion flared up anew a month later, and was relieved again in the same way by a vomica. The roentgen rays showed the small communication into the trachea. Pneumococci and streptococci were found in the pus.

Archiv für klinische Chirurgie, Berlin

137: 1-198 (Sept. 19) 1925

*Impalement Injuries. O. W. Madelung.—p. 1.
*Nature of Suture in the Stomach. C. B. Strauch.—p. 81.
*Sympathectomy for Angina Pectoris. E. Hesse.—p. 117.
Operative Treatment of Clefts in Skull and Spine. Kosyrew.—p. 131.
Regeneration of Tendons Studied with Vital Staining. Imayoshi.—p. 143.
Treatment of Traumatic Abscess in Frontal Lobe. Winkelbauer and Brunner.—p. 160.
*Should We Operate for Gastroptosis? E. Liek.—p. 174.
Terminal Arteriovenous Aneurysms. Brsosowsky.—p. 183.
Aneurysm in Splenic Artery in Man of 50. Faehrmann and Ugrümow.—p. 193.
"Importance for Transplantation of Specific Organ Immunity." K. W. Ascher.—p. 198.

Impalement Injuries.—Madelung's first communication on impalement injuries of the rectum and anus was published in 1890, and he now has collected 276 such cases from the records, including fifty-five children and seven persons over 60. The gastro-intestinal tract had been injured in seventeen cases, and in five cases the impalement had been through the vagina, once by the horn of a steer, goring the woman from the rear. In twenty-nine cases the injury proved fatal in less than two days. Peritonitis became evident in eighty-four cases and proved fatal in fifty-two. All but fifteen recovered of the forty-four treated by a laparotomy. Even mere sitting down on a stake has been known to cause impalement injury opening the peritoneal cavity. The patient should be taken to a hospital at once, even after what seems to be a trivial impalement accident; one never knows how much damage has been done inside. He should be kept sitting up, to keep urine, feces and effusions in the lower part of the pelvis. Although tetanus after such a trauma is extremely rare, a prophylactic injection of the antiserum is advisable at once. Even the mere extraction of the stake may require a major operation, and this may be necessary to correct injury from ill advised attempts to remove the impaling article. Hemorrhage was slight and rare but he warns against rinsing out the rectum with hot or cold water, as has been recommended, and against suturing the tears until after the full extent of the injury has been determined. In Rosenberger's case, the stake had perforated the diaphragm, and the patient died the thirty-seventh day. The advantages of colostomy to supplement the laparotomy are borne out by practical experience. Madelung reviews all this material in detail, and the lessons therefrom, giving eight pages of bibliography.

The Suture in Stomach Operations.—Strauch concludes from his clinical and experimental study of this subject that the same principles apply here as in suturing the skin. All suturing on the stomach must be regarded as in an infected region, and catgut is the material to use. On the adhesion of the serosa depends the stanchness of the suture, and the sheets should be lapped as far as possible.

Surgical Treatment of Angina Pectoris.—Hesse operated on three women in the fifties and one man, all seeking relief for chronically recurring angina pectoris. In one case there were no further pains after the operation, and the radiation of the pains was arrested in all. In these and fifty-eight cases reported by others, no improvement was apparent in 6.8 per cent., but 70.5 per cent. were completely and 22.7 per cent. nearly completely cured. Nine of the patients died in a few hours or days after the operation (heart failure or pneumonia), and three died within six weeks without recurrence of the pains; death occurred suddenly with severe collapse of the heart. One of his own cases was in this group, and is the only one of the kind with necropsy records. The anatomic and physiologic basis for the sympathectomy seems rational, and Jonnescu has two cases with complete cure for seven years and a year and a half to date.

Gastroptosis.—Liek questions whether a sagging stomach should be given operative correction, his impression being decidedly adverse to this. He says that what requires treatment is the whole constitution; the gastroptosis is only one manifestation of this. He has frequently encountered extreme gastroptosis in women quite unaware of their anomaly and free from all disturbance from it. The stomach may display atony on one occasion, and spastic contracture at another time. The common cause should be sought and corrected, not wasting efforts on the shape and size of the organ, which change from day to day. The benefits realized by surgical measures can be obtained with other and safer means, he reiterates.

Dermatologische Wochenschrift, Leipzig

81: 1495-1518 (Oct. 10) 1925

*Behavior of the Tissues in Artificial Phlebitic Thrombosis. G. Nobl and W. Löwenfeld.—p. 1495.
*The Coagulation Time in Dermatoses. J. von Deschwanden.—p. 1499.
Mechanism of Action of Sulphur. L. Görl and L. Voigt.—p. 1504.

The Structure of Artificial Phlebitic Thrombosis.—Nobl and Löwenfeld reproduce the photomicrograph of a small vein that had been injected six days before with a 50 per cent. solution of sugar. There was a relatively slight and tardy reaction on the part of the irritated vessel walls, but it had sufficed to induce a regular and firmly adherent thrombus production. The features of the consolidation, organization and obliteration processes demonstrated the practical impossibility of embolism. They add that the deaths that have been reported after injection of mercuric chlorid in treatment of varicose veins were undoubtedly due to mercurial poisoning or idiosyncrasy. With this artificial thrombus production with the hypertonic sugar solution a long stretch of the vessel is subjected to the same, regular, irritating influence, and the masses of thrombus that form cling evenly to the vessel wall throughout, guaranteeing against embolism. The conditions are entirely different from those with natural thrombosis.

The Blood Coagulation Time in Dermatoses.—The clotting time was found abnormally long in several skin diseases, especially in eczema. In five cases of chronic eczema recurring since childhood, the interval before coagulation ranged from fifty-three to sixty-six minutes. In seventeen normal persons, the range was from thirty-five to thirty-nine minutes.

Deutsche medizinische Wochenschrift, Berlin

51: 1641-1684 (Oct. 2) 1925

Inflammations of the Adnexa. C. J. Gauss.—p. 1641. C'td.
Hematuria. H. Kummell.—p. 1643. C'cn.
Irradiation of Endocrine Glands in Cancer. Halberstaedter.—p. 1646.
*Herpes and Smallpox. E. Gildemeister and K. Herzberg.—p. 1647.
*Psychotherapy in Organic Nervous Diseases. M. Inglessis.—p. 1651.
Widal's Reaction in the First Week. F. Oster.—p. 1653.
*Prevention of Diphtheria. Denks.—p. 1655.
Toxin-Antitoxin Immunization. H. Kleinschmidt.—p. 1657.
*Tuberculin Reaction After Vaccination by Langer's Method. G. Fedders.—p. 1659.
The Art of Prescribing. II. K. Schübel.—p. 1661.
Leukocytic Index. A. Pines.—p. 1662.
Salabrose, a New Carbohydrate. M. Nothmann.—p. 1663.
Artificial Sunlight in Eye Diseases. F. Esser.—p. 1665.
Formula for Dilutions. W. Roloff.—p. 1665.
Cholecystography. K. Herman.—p. 1665.
A Vaginal Speculum. E. Guttmann.—p. 1666.
Sympathectomy in Otosclerosis. S. Rubaschow.—p. 1667.
Immune Diagnosis of Tuberculosis. F. Klopstock.—p. 1667. C'cn.
Changes in Accident Insurance. Martineck.—p. 1669.
Habitual Constipation. G. Lepehne.—p. 1680. C'tn.

Herpes and Smallpox.—Gildemeister and Herzberg produced relative immunity of the rabbit cornea against smallpox vaccine by inoculating it with the virus of febrile herpes. The contradictory results of other authors were due to the too large doses of vaccine they used. They discuss the question of herpes virus being a variant of smallpox.

Psychotherapy in Organic Nervous Diseases.—Inglessis deplores the psychotherapeutic nihilism in organic diseases of the nervous system. He reports a case of postencephalitic parkinsonism, the patient not able to write. Hypnosis, combined with suggestion from another patient, restored the faculty.

Prevention of Diphtheria.—Denks reports some untoward effects of a toxin-antitoxin vaccination. Some of the reactions might have been due to the fact that a Schick test had been made fifty days before the immunization. Tuberculous children are most liable to be hypersensitive.

Tuberculin Reaction After Vaccination with Langer's Method.—Fedders obtained positive tuberculin reactions in fifty out of sixty-two infants and children inoculated with Langer's vaccine. The pre-allergic period lasted usually two or three months.

Klinische Wochenschrift, Berlin

4: 1897-1944 (Oct. 1) 1925

Respiration and Circulation with Emphysema. R. Geigel.—p. 1897.
*Trypanocidal Substances of Serum. B. Leichtentritt.—p. 1899.
*The Pituitary and Diabetes Insipidus. P. Trendelenburg.—p. 1905.
*Hemitetany. Kehrer.—p. 1906.
*Action of Oxygen on Blood Pressure. H. Simon.—p. 1910.
*Hypoglycemia Without Insulin. E. Geiger and L. Szirtes.—p. 1912.
*Active Immunization Against Diphtheria. R. Kochmann.—p. 1914.
Etiology of Appendicitis. H. Ruge.—p. 1915.
*Peptidases in Infections of Paralytics. H. Pfeiffer et al.—p. 1916.
*Radiation from Man and Animals. H. Friedenthal.—p. 1917.
*Provocation of Seizure by Overventilation. F. Mainzer.—p. 1918.
Fat Embolism of Brain. A. Sarbó.—p. 1918.
Gynecologic Hemorrhages. A. Seitz.—p. 1920. C'td.
Summer Epidemics in Prussia. Lentz.—p. 1924.
Retention Stomach Tube. F. Boenheim.—p. 1942.
Exhaust Ventilation in Operating Room. Sturmann.—p. 1942.

Trypanocidal Substances of Serum.—Leichtentritt investigated with numerous collaborators the occurrence of the trypanocidal action in the serum of children. It was found in healthy infants beginning at least in the sixth to ninth week. It was absent in grave nutritional disturbances (especially from starch) of the avitaminotic type, such as keratomalacia and scurvy, in whooping cough, and in hemophilia. It was also absent in the seemingly healthy mothers of hemophiliac boys. Measles and thrombopenic purpura did not cause any diminution of the substance. Since Rosenthal has found that repeated injection of a protecting serum annihilates its action, it is probable that the serum acts only as a stimulant of the reticulo-endothelial system of the infected mouse. Blocking of this system—either by the large amounts of serum or by other substances (India ink)—exposes the mouse to infection in spite of the presence of the protecting serum. He has also found that certain germs grow poorly or develop pathologic forms in coagulated serum from patients in avitaminosis.

The Posterior Lobe of the Pituitary and Diabetes Insipidus.—Trendelenburg points out that one of the objections to the endocrine etiology of insipidus is the fact that large doses of the extracts are necessary to check the diuresis. If the usual claim, that 1 c.c. of the extract corresponds to 0.1 or 0.2 gm. of the posterior lobe, were true, the normal human pituitary posterior lobe—which weighs around 0.13 gm.—would have to empty its contents completely every day. He found, however, that the best commercial preparations corresponded only to 5-10 mg. of fresh posterior lobe. Therefore a daily secretion of 10-20 per cent. of the substance available would be sufficient. He found no data on the action of exactly titrated extracts in diabetes insipidus.

Hemitetany.—Kehrer analyzes his case and the literature. He concludes that a strictly unilateral tetany does not exist. Only the spontaneous spasms may in rare instances be limited to one side. This is always due to differences in the central nervous system—usually some lesion in the brain.

Action of Oxygen on Blood Pressure.—Simon confirms Loewy's experiments on the effect of oxygen. His patients inhaled daily for from three to eight minutes (sometimes several times daily) about 6 liters of oxygen per minute. In six of ten patients with nephritic or arteriosclerotic hypertension, a permanent lowering of the blood pressure was realized. Normal subjects were not influenced.

Hypoglycemia Without Insulin. — Geiger and Szirtes obtained extreme hypoglycemia by injecting 0.5-1 mg. of atropin per kilogram in rabbits after splanchnicotomy. All of the animals had spasms, but only a few hours after the blood sugar sank to 0.03-0.01 per cent. Injection of glucose or epinephrin had favorable transitory effects, the latter at times in spite of the further lowering of the blood sugar level.

Active Immunization Against Diphtheria. — Kochmann observed three cases of comparatively grave diphtheria in Schick negative infants who were being immunized with toxin-antitoxin. He warns against the danger of the negative phase, especially in Schick negative subjects.

Peptidases in Infections of Paralytics.—Pfeiffer, Standenath and Weeber found an increase of the glycyltryptophan splitting peptidase in the serum during malaria attacks, erysipelas and grave febrile tuberculosis in patients with general paralysis. The amount of the ferment in the urine was diminished during the height of the fever.

Radiation from Man and Animals.—Friedenthal has devised an apparatus to measure the radiation from the body. Emotions have a great influence. The apparatus is sufficiently sensitive to indicate differences in the radiation from the pupil in looking calmly or staring.

Provocation of Seizure by Overventilation.—Mainzer was able to induce a seizure by deep breathing only in two of fourteen patients with epilepsy or hysteria. The experiment was constantly successful in a patient with traumatic epilepsy. The concentration of chlorin in the blood plasma increased 4 per cent. during the hyperpnea. An intravenous injection of a 10 per cent. solution of sodium chlorid also provoked the seizure, as well as an equimolecular solution of sodium acetate, but not of glucose. He believes that an osmotic irritation of the central nervous system and perhaps a specific action of the chlorin ion are responsible.

Wiener Archiv für innere Medizin, Vienna

11: 201-424 (Sept. 25) 1925

*Diabetes Insipidus and Polydipsia. R. Bauer.—p. 201.
*Acute Leukemia and Sepsis. A. Decastello.—p. 217.
Roentgen Diagnosis of Pulmonary Tumors. F. Eisler.—p. 245.
*Chlorin Metabolism and Gastric Secretion. G. Holler.—p. 251.
*Action of Glucose and Insulin on Muscles. Kollert and John.—p. 267.
Tuberculosis and Efficiency. E. Kugler.—p. 281.
*Spleen and Iron Metabolism. E. Lauda.—p. 293.
Inflammation of Meckel's Diverticulum. L. Petschacher.—p. 311.
*Dynamic Action of Carbohydrates. H. Pollitzer and E. Stolz.—p. 319.
Pulmonary Atherosclerosis. A. Posselt.—p. 357.
*Iso-Agglutinins. W. Starlinger and U. Strasser.—p. 399.
Acute Nephritis. E. Stolz.—p. 405.
The Exudative Diathesis and the Vegetative System. H. Wittgenstein.—p. 417.

Diabetes Insipidus and Polydipsia.—Bauer's patient voided from 10 to 20 liters of urine daily. Pituitary extracts lowered the output, but physiologic salt solution substituted without the patient's knowledge had the same beneficial effect. He discusses all the differential symptoms known from the idiopathic diabetes insipidus and polydipsia, and concludes that none of them are decisive, except the result of suggestive treatment.

Acute Leukemia and Sepsis.—Decastello concludes from his own cases and the literature that acute leukemia must not be identified with sepsis, although it follows sometimes septic infections. He emphasizes Petrén-Odin's case, in which a long remission was obtained by injections of arsphenamin (7.2 gm. in 0.6 gm. doses within a month).

Chlorin Metabolism in Disturbances of Gastric Secretion.—Holler confirms in a general way Gundermann's findings. Yet only those cases of duodenal ulcers show an increased diuresis (in the Volhard test) in which there is hyperacidity. With low chlorin content in the stomach, the diuresis is smaller, but the elimination of chlorids is high (ulcers of the stomach). Chronic appendicitis causes frequently gastric hypersecretion and corresponding changes of diuresis. Cancer of the stomach has usually a low elimination of water and of salt, except with extremely high chlorin concentration in the stomach.

Action of Glucose and Insulin on Muscles.—Kollert and John's investigations were made on patients with idiomuscular irritability. This is the formation of a local contraction on mechanical irritation (percussion). The contraction lasts for a few seconds and occurs in fatigue and cachexia. Intravenous infusion of 35 c.c. of a 40 per cent. solution of glucose improved the condition. Addition of insulin enhanced this action, although insulin alone had no effect. The muscles of cachectic carcinomatous patients were most difficult to influence—perhaps because the glucose was absorbed by the tumor. They also think that idiomuscular excitability indicates a disturbance of the carbohydrate metabolism of the muscles.

Spleen and Iron Metabolism.—Lauda found no siderosis in otherwise healthy rats after splenectomy. The contradictory results of other authors are explained by the occurrence of an infectious hemolytic anemia in these animals.

Specific Dynamic Action of Carbohydrates.—Pollitzer and Stolz observed a marked irregularity of the oxygen consumption after the intake of carbohydrates. Bread and glucose acted differently even in the same individual. They explain this by the close connection with the water-regulatory function of the liver. While the majority of subjects did not show any changes of the oxygen intake after drinking water, the metabolism in patients with jaundice decreased. They agree with Gigon that there is no specific dynamic action of the food. They find that the food intake starts the work of the complicated mechanism of maintaining the constancy of basal metabolism, of temperature and of turgor (water metabolism). "We are testing by the specific dynamic action the functional attitude of these systems and the form in which they react."

Iso-Agglutinins in Blood Plasma and Serum.—Starlinger and Strasser found that native plasma from subjects of Group II frequently agglutinated corpuscles of Group III less strongly than the serum from the same subject, while it was the reverse with Group III. They also mention that some of the Group II plasmas agglutinated corpuscles from Groups II and III.

Wiener klinische Wochenschrift, Vienna

38: 1075-1098 (Oct. 1) 1925

*Oncogenic Constipation. H. Pollitzer.—p. 1075.
Perirectal Gas Phlegmon. H. Kunz.—p. 1082.
*Cataphoresis in Tuberculosis of Bones. T. B. Weiss.—p. 1083.
Rectal Administration of Pituitary Extracts. A. Weil.—p. 1085.
*Medical Thinking. A. Greil.—p. 1086.
Fight Against Typhoid. S. Peller.—p. 1089.
Insulin Treatment. W. Falta. Supplement.—pp. 1-16.

Oncogenic Constipation.—Pollitzer deals with the constipation in fat, torpid women, which he attributes to disturbances of the turgor (Greek, *onkodes*). These patients have a low basal metabolism. In one group the specific dynamic action of the food is high, in the other low. The latter is increased by intramuscular injections of 10 c.c. of physiologic solution of sodium chlorid saturated with hydrogen sulphid. Drinking daily half a glass of a 5 per cent. dilution of such a solution, or sulphur baths, may also relieve the constipation. Thyroid treatment which helps in such cases, probably acts in a similar way on the turgor.

Electrotherapy.—Weiss used successfully cataphoresis of colloidal silver for impregnation of bones from cadavers. The results were sufficiently encouraging for therapeutic experiments in tuberculosis of the bones. The first impression was very good, but he thinks that it is necessary to wait longer with the publication of clinical results.

Medical Thinking.—Greil emphasizes the importance of epigenetic changes. The "wonder world" of teratomas with all its intermediary changes toward univitelline quadruplets is determined in the second week of pregnancy—not at the moment of fusion of the spermatozoon with the ovum. He thinks that the terrorism of the chromosomes has injured clinical biology and the development of medical science more than the terrorism of a one-sided bacterial etiology. The highest triumph of medicine would be to learn enough about pregnancy and the development of the fetus to be able to direct this epigenetic series of reactions, helping, and preventing constitutional anomalies. This "descent to the mothers" is inhibited, he says, by the reign of theories on determinants, gens and germ plasm, which physicians *credunt quia absurdum.* There is no difference in physical chemistry between the determination and realization factors. By this differentiation, Roux produced an abyss between inorganic and living matter which would condemn the physician forever to the rôle of a half ignorant healer-artist. He believes that the theories that the fate of the individual is fixed at the time of fecundation, the theory of gen coupling, lethal factors, etc., are only writing-desk fictions. The sexes have a different significance in heredity, the yolk and middle part of the spermatozoon are important factors—not only the chromosomes. He wants medicine—a science of action—to get rid of the convenient mistakes of the reigning theory of heredity. It is innocuous in zoologists and botanists, but they will, he believes, come in time to learn from the physician, who is conscious of his responsibility to suffering and upward striving humanity.

Zeitschrift für Kinderheilkunde, Berlin

40: 1-176 (Sept. 28) 1925

*Influence of Unphysiologic Feeding. P. Junkersdorf and P. Jonen.—p. 1.
*Sedimentation Test in Scarlet Fever. L. Büchler.—p. 18.
*Proportional Fuel Value of Foods. C. Pirquet and R. Wagner.—p. 26.
*Gastric Acidity in Infants. F. Demuth.—p. 46.
*Syphilis from Wetnurse. H. Wimberger.—p. 68.
Idiopathic Osteopsathyrosis. H. Rau.—p. 77.
*Treatment of Pylorospasm. H. Herz.—p. 83.
*Gonorrheal Arthritis in Infants. B. Hellmann —p. 92.
*Dick Test and Scarlet Fever. E. Nobel and H. Orel.—p. 96.
*Whooping Cough. S. Meyer and E. Burghard.—p. 103.
*Massage in Rickets. H. Wimberger.—p. 119.
Acute Psychoneuroses in Children. J. K. Friedjung.—p. 126.
Albumin Milk Plus Browned Butter. H. Pogorschelsky.—p. 133.
Etiology of Nevus. L. Leven.—p. 147.
*Idiopathic Polycythemia. O. Herz.—p. 151.
Necessity for Training of Children. F. Goppert.—p. 157.
*"Acute Cerebral Tremor." P. G. Böttcher.—p. 170.
*Serum Sickness After Treatment of Diphtheria. E. Bienenstein.—p. 175

Influence on Growth of Unphysiologic Food.—Three litters of puppies were fed with a flour gruel such as is used in infant feeding, rich in carbohydrates but without fat. The effect on the development was of the vitamin deficiency type, and it was more serious the younger the animal at the time this feeding was begun. The deleterious influence was most pronounced when the mother animals had been undernourished during the gestation. In addition to the abnormal conditions in regard to growth and development, the puppies showed a peculiar disappearance of the pigment in the ball of the paws, and an abnormal chemical composition of the entire organism, especially of the liver. The entire findings suggest that the action of the vitamins is analogous to catalysis. They throw light on deficiency disturbances and the *Mehlnährschäden* of the pediatricians. The research was aided by a grant from the Rockefeller Foundation.

Import of the Sedimentation Test in Acute Infectious Diseases in Children.—This instalment is devoted to scarlet fever. Büchler noted that the twenty-fifth day was the earliest date in thirty-five cases of scarlet fever at which the sedimentation test gave an approximately normal response. The chart of the test findings shows a gradual slanting rise on a straight line to the twenty-fifth day and then a horizontal line. If the line of the curve drops down, some complication is developing.

Fuel Value of Elements of the Food.—Pirquet and Wagner tabulate under nineteen headings the findings in 386 specimens of animal foods and 542 specimens of foods of vegetable origin. The aim is to estimate the proportional fuel value in each of the protein, fat and carbohydrate content. Each article of food in the diet for diabetics can now be ordered in portions which correspond to the potential energy of the food materials instead of merely their weight. They use nems for their calculations.

Motor Functioning and Acidity of the Stomach in Infants.—Demuth gives over twenty pages of further data to supplement his previous research on this subject. Among the facts emphasized is that the presence in the stomach of bacilli of the colon group is not necessarily pathologic. With acidity less than a p_H of 4.5, these bacilli were found in the stomach in 57 per cent. of the sick infants; in 65 per cent. of the dyspeptic, and in 69 per cent. of the healthy infants.

Infection from Syphilitic Wetnurse.—The child was not thriving on artificial food, and a wetnurse was engaged when the child was nearly 3 months old. She had been obtained through the regular wetnurse institute, but had a "fever blister" on the lip which healed promptly, but a sore developed on the cheek, and the Wassermann test was then positive, and was positive in the infant's blood three months after the wetnurse had been engaged. The case is notable in that the infant developed an arsphenamin dermatitis. Necropsy showed grave syphilitic injury of the liver.

Nonsurgical Treatment of Pylorospasm.—Herz has had eight female infants in his latest series of fifty-two cases of pylorospasm under the age of 18 weeks. He treats it exclusively internally, ten or twelve small feedings of human milk daily, by bottle, spoonful or tube in the nose. The tube in the nose causes least irritation of the nervous stomach centers, and is borne best. In twenty-six cases a cure was realized without drugs. In others, atropin, cocain or papaverin was used besides. The attention the infant gets from the nurse is a potent factor in the outcome; one infant may do better when lying prone after feeding, another when reclining with a sandbag on the abdomen. None of the fifty-two died from the effects of the pylorospasm, and forty-five were partially or completely cured.

Gonococcus Arthritis in Infants.—Hellmann relates that infection had been intra-uterine in one of the two cases he describes. No entering point for the gonococci could be discovered.

The Dick Test in Scarlet Fever.—Nobel and Orel obtained a positive response in only eight of sixty-nine children known positively to have had scarlet fever; in four of twenty-seven supposed to have had the disease, and in 27.8 per cent. of 270 without a history of scarlet fever. Time will show whether any of the negative children develop scarlet fever later; on this depends the usefulness of the test.

Whooping Cough.—This Düsseldorf clinic analysis of 442 cases in infants less than a year old, 423 in older infants, and 199 in children over 3, emphasizes the lack of the whoop in the younger infants. By waiting for the whoop, and not isolating in time, an epidemic may become installed. The infants are extremely restless, and their crying is with rapid breathing, interrupted by frequent coughing. They scratch their faces, bump their heads against the side of the crib, and throw their arms about. Roentgenoscopy may reveal an emphysema partly covering the heart. Attacks of sneezing may initiate or substitute whooping cough paroxysms. In one child, spasms of yawning initiated the paroxysm of coughing. Whooping cough is a serious disease in infants; it may induce fatal closure of the glottis or fatal convulsions from other cause or from the whooping cough paroxysms; in the latter, possibly, by necrosis of ganglion cells. Complications on the part of the lungs are common in infants; the infant may survive a first attack of complicating pneumonia and succumb to a second. Bacteremia was noted in nine cases after whooping cough pneumonia with fatal localizations. No drugs displayed any efficacy in infants, but vaccine therapy seemed to aid in aborting the disease. It had no appreciable effect on the established disease. The main reliance is on "open air" treatment and breast milk. Reduction of intake of fluids helps to reduce secretion; it may be well to give the food in a thick gruel form. The thick food feeding (four a day) has the further advantage that the stomach contracts to a smaller size and does not push up the diaphragm, relieving the respiratory organs to that extent. There is less tendency to vomit with the thick food. Stretching the neck by lifting the chin mechanically shortens the coughing spasm, and venesection in whooping cough pneumonia often tides the infant past the danger point. Of the total 1,064, 38 per cent. died of those under 3; 10.4 per cent. of the 2 to 3 age, and 3 per cent. of the 199 over 3.

Mechanotherapy for Rickets in Infants.—Wimberger is inclined to think that massage of the legs twice a day helped in the treatment of rickets in infants taking cod liver oil, but not in the others.

Familial Polycythemia.—Herz describes four families with a total of thirteen members presenting polycythemia of moderate degree without subjective symptoms. The spleen was not enlarged and the blood pressure was not always high. The erythrocyte count ranged from 5,300,000 to 8,200,000.

"Acute Cerebral Tremor."—A boy, aged 5, was brought to the hospital with the diagnosis of tuberculous meningitis, thirteen days after a fall injuring the back of the head. The fever, diarrhea, somnolency, spasms, contractures and athetotic movements with twisting of the head and tremor continued for some days. The fever subsided the eleventh day, the stupor the next day, and the other symptoms soon after, with complete recovery. Treatment had been merely symptomatic, long tepid baths, and chloral by the rectum the most restless nights. Bottcher regards the case as an instance of a new infectious disease in which the brain is transiently affected. Like the meningism of acute infectious diseases, there was a kind of encephalism.

Serum Sickness After Diphtheria Antitoxin Treatment.—Bienenstein relates that 17.2 per cent. of 235 children developed serum sickness (Vienna).

Zentralblatt für Chirurgie, Leipzig

52: 2225-2288 (Oct. 3) 1925

*Treatment of Gastroptosis. B. Martin.—p.' 2226.
*Internal Drainage of Hydrocephalus. Heile.—p. 2229.
"Technic for Bone Suture." M. Kirschner.—p. 2236.
*Cyst and Cavity Formation. M. Gara.—p. 2238.
Vein Implant to Bridge Gap in Artery. Weglowski.—p. 2241.
*Treatment of Varicocele. C. Prima.—p. 2244.
*Treatment of Gastroptosis. W. R. Braizew.—p. 2245.
*Treatment of Mal Perforant. Bertone.—p. 2248.

Operative Correction of Gastroptosis.—Martin argues that the sagging of the stomach is due to a substandard condition of the cardiac portion. He explains the separate origin of this part of the stomach, and how the lack of elasticity entails the ptosis. His remedy is resection of the cardiac portion, and he describes four cases in which he applied this with excellent results to date, from eight to twelve months since the operation.

Anastomosis Between the Ureter and Spinal Dura to Drain Congenital Hydrocephalus.—Heile has applied this treatment successfully in an infant with progressive hydrocephalus and convulsions. The ureter was cut to include the funnel at the junction with the kidney pelvis. It was then drawn over to the spine, which it reached without traction. Before incising the dura, the retroperitoneal incision was sutured. The sacrifice of a healthy kidney is the drawback of this method. The intervention was borne surprisingly well by the young infant. The child has developed apparently normally during the five months since, and has had no return of the previous spasms. Heile applied this technic further in a case of brain tumor with the spinal fluid under high tension, but the condition was too grave for more than temporary relief and the adult patient died the next day.

Cysts as Regeneration Process.—Gara has induced the formation of cysts in subcutaneous tissue and muscles which seemed to be identical with the congenital and acquired. He is convinced that every cyst must be regarded as the result of an effort at regeneration. Hence the only treatment for it is the complete extirpation of the whole process, with all its walls. Conditions are then provided for healing by some other mechanism than "cyst healing."

Treatment of Varicocele.—Prima insists that varicocele is merely one manifestation of a general substandard condition. The indications are to tone up the whole system. When this is accomplished, the varicocele will spontaneously subside. He protests against local operative measures.

Surgical Treatment of Gastroptosis.—Braizew presents evidence to show that the cause for the sagging of the stomach is generally traction from the sagging of the transverse colon. He corrects this by suturing the mesentery of the transverse colon to the anterior abdominal wall, on a level with the tenth rib. As soon as the drag from the mesocolon is corrected in this way, the stomach regains its normal elasticity and there is no further gastroptosis. He has operated in this way in three cases, with excellent results.

Stretching the Nerve Trunk in Treatment of Mal Perforant.—Bertone has found this constantly effectual in treatment of mal perforant, as applied in about 100 cases at the Venice surgical clinic. Of course the healing left a cavity defect, but this occurs also with excision. The stretching of the sciatic nerve is a simpler procedure than peripheral sympathectomy, while the results seem to be more dependable.

Časopis lékařů českých, Prague

64: 1393-1428 (Sept. 26) 1925

Remnants of Cloaca and Wolffian Duct Near the Bladder. G. Müller. —p 1393.
*Friedreich's Ataxia. V. Jedlička and K. Henner.—p 1396.
*Duodenal Stenosis from Adhesions. V. Novák.—p. 1403.
*Pirquet Test in Infants. F. Skalník.—p. 1408. C'cn.
Actinomycosis of the Genitals. F. Horálek.—p. 1411.
*Exophthalmic Goiter. E. Kliment.—p. 1417.

Friedreich's Ataxia.—Jedlička and Henner describe two cases of cerebellar ataxia. The first had spastic flexion paraplegia, the other a loss of vestibular reactions with the cochlear apparatus intact. Photomicrograms of sections from the spinal cord of the first case are added.

Duodenal Stenosis from Adhesions.—Novák discusses his twenty-four cases of stenosis of the duodenum due to adhesions; all of them were confirmed or diagnosed by the laparotomy. The symptoms of obstruction usually arise only with gastroptosis. Roentgen rays are essential for the diagnosis.

Pirquet Test in Infants.—Skalník's twelve cases demonstrate that a positive Pirquet test proves, even in infants, only a tuberculous infection—not necessarily the disease. The negative response is valuable only if the possibility of an ante-allergic or negatively allergic state or deterioration of the tuberculin is excluded.

Exophthalmic Goiter.—Kliment reports favorably on the results of treatment of exophthalmic goiter with ergotamin tartrate.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1311-1406 (Sept. 19) 1925

*Necrosis of Fat in the New-Born. Carol and van der Zande.—p. 1317.
*Roentgenography of Periesophagitis. Huizinga and Keijser.—p. 1328.
*Cancer of the Skin. Wassink and Wassink-van Raamsdonk.—p. 1333.
Minor Technical Point in Extension for Fracture. F. Geelen.—p. 1341.
Korsakoff's Syndrome in Woman with Pancreas Cyst. Bolten.—p. 1342.

Subcutaneous Necrosis of Fat Tissue.—The newly born child developed adiponecrosis subcutanea neonatorum, and died the thirty-ninth day. This affection seems to be a distinct morbid entity, with a special clinical and histologic picture that has nothing to do with sclerodermia, although such cases have probably been classed with the latter or labeled sclerema adiposum. The necrosis and splitting of the fat was accompanied by an inflammatory reaction and resorption. The child had been apparently healthy for three weeks after spontaneous delivery. The location of the patches suggested trauma, possibly during the efforts to resuscitate the child, born in deep asphyxia.

Roentgen Rays in Periesophagitis.—Huizinga and Keijser call attention to the importance of Minnigerode's discovery of a light strip in the roentgenogram corresponding to air that had escaped through a perforation in the esophagus, or gas generated in a suppurating process. They describe four cases, one with spontaneous subsidence of the disturbances after extraction of the swallowed bone. After the swallowing of a foreign body, repeated roentgenoscopy will reveal the first onset of escape of air through perforation of the esophagus wall, and allow intervention in time to ward off serious trouble.

Radiotherapy of Cancer of the Skin.—The cancer research institute at Amsterdam treated 160 cases of superficial cancers 1915-1921, all with radium, curetting the extensive ones to allow closer application of the radium. The histologic structure did not seem to influence the results. There was recurrence in only twenty-five, and the recurrence promptly subsided under renewed application of radium. Every case was cured that did not have metastases when first seen, or special circumstances preventing contact with the radium.

2: 1407-1514 (Sept. 26) 1925

Medical Education in Europe (Flexner). G. van Rijnberk.—p. 1407. C'tn.
*Pulmonary Embolism. K. de Snoo.—p. 1411.
*Malaria in Palestine. Swellengrebel.—p. 1422.
Adipositas Dolorosa in Mother and Three Daughters. Bolten.—p. 1433.
Vaccine Therapy in Whooping Cough. N. A. Scheers.—p. 1437.
Hydatid Cyst in Young Woman's Lung. A. de Jongh.—p. 1438.

Fatal Pulmonary Embolism.—De Snoo relates that two parturients died recently in his service on the same day from pulmonary embolism. He thinks this is more than a casual coincidence, having noticed the same accumulation of cases on other occasions, suggesting that the bacteria were of a special thrombosis-inducing type. There have been twelve cases of fatal embolism of the lung since 1907, in a total of 10,000 deliveries. The embolus came from the pelvic veins in all but one of the cases. Seven of the women died within a few minutes; two in half an hour, one in thirteen hours, and in the latest case two days had elapsed from the first symptoms of embolism. No instance was known of embolism in the spontaneously delivered women, not even with placenta praevia, eclampsia, syphilis, anemia, heart disease, or other complication. The difference is striking between the 8,200 spontaneous deliveries without a single instance of embolism and the eleven fatal embolism cases in 1,845 artificial deliveries. He insists that every woman with thrombosis should be isolated as infectious. He refuses all except emergency operations during thrombosis epidemics. With severe infection, there is less danger of embolism, as the thrombi stick faster to the vessel wall. In one of his cases a loose thrombus, 40 cm. long, had developed in the femoral vein, which raises the query why embolism is not more common. Possibly the thrombosis-cocci increase the coagulability of the blood, and it may yet be possible to combat this with extract of leeches or other means without danger of after-hemorrhage.

The Fight Against Malaria in Palestine.—The spleen malaria index has fallen from 59 per cent. of 616 children examined in 1912 to zero in 1924 among 829 children. Swellengrebel remarks that the lack of rainfall and other conditions in Palestine facilitate the extermination of malaria.

Acta Chirurgica Scandinavica, Stockholm

59: 287-437 (Oct. 1) 1925

*Rectal Prolapse in Children. G. Petrén.—p. 287.
Conditions as to Asepsis in Lund Surgical Clinic. Ivarsson.—p. 299.
*Splenectomy in So-Called Banti Disease. R. Brandberg.—p. 335.
*Traumatic Detachment of the Gallbladder. L. Andersson.—p. 369.
*Contusion Injuries of Biliary Apparatus. Idem —p. 380.
Heminephrectomy for Hydronephrosis in Horseshoe Kidney. Hellsten. —p. 415.
*Human Horns. R. Olinder.—p. 427.

Ultimate Outcome of Rectopexy in Children.—Petrén endorses the simplicity, ease and excellent outcome of Ekehorn's method of treating prolapse of the rectum or anus by passing a stout silk thread through the posterior wall of the rectum and tying it over the lower part of the sacrum. The thread is removed after two weeks. Recent reexamination of twenty-six children that had been treated by this means at Lund between 1910 and 1923 showed that it had been permanently effectual in all. The ages of the children ranged from 14 months to 7 years, with the exception of one child of 12. In this latter case the reaction, both general and local, was more severe than in the others, but in six cases the temperature rose to about 39 and in thirteen to nearly 39 C. The stay in the hospital averaged eighteen and a half days. The desired result from the rectopexy was attained constantly, without exception, in the known fifty-eight cases to date in which this technic had been applied. Ekehorn's original description of it is reproduced. The article is in German.

Splenectomy in Banti's Disease.—Brandberg regards splenectomy as indicated in every type of cirrhosis of the liver with enlargement of the spleen, but he has had no experience with actual Banti's disease. In four cases of cirrhosis of the liver with enlargement of the spleen, splenectomy had a beneficial effect, arresting the process in the liver, although a cure is out of the question. One of the four patients died from the progress of the disease, five years after the splenectomy. The others are still in comparative health from nine months to three years since. In two other cases, one patient died from postoperative complications and the other survived only two years. No benefit from the operation was apparent in this case. The microscopic findings in the spleen in splenomegalous cirrhosis seem to be identical with those in the spleen from progressive thrombosis of the splenic and portal veins. The disturbances in both are therefore probably of the same nature, the result of extreme venous stasis. In a group of three other cases, the spleen findings were quite different; there was hyperplasia of cells and lack of any tendency to fibro-adenia. The spleen in these three women was larger than in the liver cirrhosis cases and all were benefited by the splenectomy. There was a possible suggestion of lymphatic aleukemia in one case and of lymphogranulomatosis in another. The latter patient died from pneumonia six months later. The third patient was well for a year after the splenectomy, but then chronic nephritis developed. This thirty-four page article is in English, and the ten splenectomy cases are described in detail.

Traumatic Separation of the Gallbladder.—Andersson's patient, a boy, aged 4, recovered after the gallbladder—partially separated by a fall from a wagon—had been replaced. The bleeding from the bed of the gallbladder was arrested with a couple of catgut sutures, and tampons were packed in the angle between the gallbladder and the liver. Eleven somewhat similar cases are summarized from the records. The symptoms are similar to those from contusion in general. The gallbladder itself was torn only in one instance, and there was not much hemorrhage in several.

Contusion of Biliary Apparatus.—Andersson's study of this subject is based on twenty-four cases of subcutaneous rupture of the liver and two of rupture of a bile duct.

Human Horns.—The horn in the case described was on the abdomen, just below the umbilicus. It was 34 cm. long and measured 14 cm. around the base. The patient was a woman of 55.

Ugeskrift for Læger, Copenhagen

87: 815-840 (Sept. 17) 1925

*Deep Action of Silver Salts. H. Haxthausen.—p. 815.
*Activation of Peroneus Muscle. A. Berntsen.—p. 821.
*Extraction of Embolus in Pulmonary Artery. Biilmann.—p. 823.
Right Cerebral Paresis of Neurosis Type. C. Gram.—p. 827.
Ambidexterity. C. Gram.—p. 828.

Deep Action of Silver Nitrate.—Haxthausen concludes from his extensive experience that there is no experimental or clinical basis for the assumption that organic preparations of silver have any greater efficacy than silver nitrate in injection treatment of gonorrhea. The latter diffuses to a greater depth in the tissues than the others. Comparative tests in fifty cases of acute uncomplicated gonorrhea showed invariably a better effect from silver nitrate.

Tendon Transplantation to Restore Function to the Peroneus Muscle.—Berntsen's illustrations show how he lengthens the Achilles tendon by slitting it lengthwise, bayonet fashion, and then draws it around behind the peroneus muscle to which it is sutured. By this means the flaccid peroneus is activated by traction from above and below and on both sides. In twenty-six of thirty-eight cases the outcome was excellent. The failures were all due to the fact that the Achilles tendon was not so capable as had been assumed.

Embolus in Pulmonary Artery.—Biilmann comments on the fact that all died soon after the embolectomy in the nine cases on record treated by the Trendelenburg technic; only one survived to the sixth day. He has worked out on the cadaver a method which he thinks would be more effectual. It includes slitting the sternum lengthwise and aspirating the embolus through the pericardium. He has been able to complete the whole procedure on the cadaver in a minute and a half.